Sewer Acct.#: **1003803000**

Company: **BRIDGETON LANDFILL LLC**

Address: **13570 St. Charles Rock Road**

City: **Bridgeton**

State and Zip: **MO 63044**

Industry ID	File Code	File Description
17931	31	INDUSTRY OVERFLOW

ACCOUNT NUMBER: **10038030-00**

COMPANY NAME: **BRIDGETON LANDFILL LLC**

CORRESPONDENCE

FROM 01-06-16 THRU 08-16-16

X	CORRESPONDANCE LOCATED IN OVERFLOW INDUSTRY FILE

TO: **File**

FROM: Angie McDonough amm

DATE: August 16, 2016

RE: **BRIDGETON LANDFILL LLC**
WASTEWATER USER CHARGE BILLING
ACCOUNT NUMBER 0039145-8

Pursuant to the MSD Industrial Wastewater Discharge Permit for the above referenced facility, this facility will be billed for the following charges for the indicated billing period:

DISCHARGE PERIOD: **July 2016**

BILLING IS FOR: **On- Site Special Discharge**

SAMPLE POINT: **013**

Billing Item	Quantity	Units	Rate	Charge
Volume	11,158	CcF	$ 3.59 /CcF	$40,057.22
COD Extra-Strength Surcharge	1,690	mg/L	$327.00 /ton	$12,408.38
Total	--	--	--	**$52,465.60**

If you have any questions, please call me at extension 8762.

bv

ec: Brian Gibson
Doug Mendoza
Bridgeton Republic Services

FILE: IU; Bridgeton Landfill LLC, 1003-8030-00

Doug Mendoza

Bridgeton Landfill
1003803000

From: Fanning, Erin <EFanning@republicservices.com>
Sent: Monday, August 15, 2016 11:40 PM
To: Doug Mendoza
Cc: Graves, Stephen; Kamp, Kevin; Jonathan Wilkinson (jwilkinson@feezorengineering.com); Kevin O'Leary; Galbraith, Ed (egalbraith@cecinc.com); Bauer, Nicholas
Subject: RE: Permit No. 1003803000-1 monthly volume discharge report
Attachments: 4337 MSD Monthly Discharge Reporting (07-2016).pdf; 4337 MSD Monthly Discharge Reporting (07-2016).xlsx

Good evening Doug,

In accordance with Section II, Conditions D.2 and D.3 of Permit No. 1003803000-1, attached please find the July 2016 monthly volume of wastewater discharged from the Bridgeton pretreatment plant.

Thank you very much for your time, have a good week, and please do not hesitate to contact me with any questions.

Kindest regards,

Erin Fanning
Division Manager

Bridgeton Landfill, LLC.
13570 Saint Charles Rock Road
Bridgeton, MO 63044
Cell: (209) 227-9531

Bridgeton Landfill Pretreatment Facility - Permit #1003803000 -1.2
Monthly Discharge Report

Date	**Discharge** Sample Point **013**	**Hauled** (gallons) Sample Point **014**	**Forcemain flush water**
7/1/16	281,032	0	0
7/2/16	279,692	0	0
7/3/16	247,892	0	0
7/4/16	298,220	0	0
7/5/16	269,600	0	0
7/6/16	280,804	0	0
7/7/16	291,044	0	0
7/8/16	293,076	0	0
7/9/16	293,624	0	0
7/10/16	291,660	0	0
7/11/16	293,576	0	0
7/12/16	290,520	0	0
7/13/16	271,688	0	0
7/14/16	97,156	0	0
7/15/16	176,480	0	0
7/16/16	291,164	0	0
7/17/16	287,680	0	0
7/18/16	286,656	0	0
7/19/16	287,500	0	0
7/20/16	284,920	0	0
7/21/16	282,160	0	0
7/22/16	279,188	0	0
7/23/16	274,216	0	0
7/24/16	272,664	0	0
7/25/16	243,980	0	0
7/26/16	290,296	0	0
7/27/16	284,424	0	0
7/28/16	274,384	0	0
7/29/16	264,084	0	0
7/30/16	194,376	0	0
7/31/16	292,244	0	0

total discharged	8,346,000.00
total hauled	0.00
total	8,346,000.00

Comments:
Sample Point 013 is using an Emerson calibrated flow meter at the discharge location.

Doug Mendoza

From: Graves, Stephen <sgraves@cecinc.com>
Sent: Thursday, August 04, 2016 1:06 PM
To: Doug Mendoza
Cc: Kamp, Kevin; Galbraith, Ed; Erin Fanning (EFanning@republicservices.com); Sincox, Dana; Bauer, Nicholas
Subject: RE: Ultimate BOD for Bridgeton Landfill
Attachments: REIC COC v10-0114a-S2.pdf

Doug,

In response to your request as to why the second Ultimate BOD test was not a valid test:

A sample for the analysis of Ultimate BOD was collected and sent to REIC Laboratories in Beaver, WV on 5/19/16 with explicit directions to analyze nitrate and nitrite nitrogen as required by the method (see attached COC). At some point during the early part of the analysis the analyst performing the testing misinterpreted the procedure and thought that nitrate and nitrite nitrogen were not required for the test and stopped performing that part of the analysis (see inserted email below). Without these analyses the calculation of nitrogenous BOD cannot be calculated thus making the result that was delivered invalid.

Respectfully,

Steve

Steve,

I apologize for not getting the attachment on there this morning. The only nitrate/nitrite readings they did was on the first reading. You will see it on the attached sheet. After that is when they read the method again and stopped doing the readings. There must have been some confusion, on that you wanted the readings for calculations. Let me know if I can be of any more assistance.

Have a great day,
Billy

From: Billy Shirley [mailto:bshirley@reiclabs.com]
Sent: Monday, July 18, 2016 11:17 AM
To: 'Steve Graves' <sgraves@cecinc.com>; 'egalbraith@cecinc.com' <egalbraith@cecinc.com>
Subject: 40 Day BOD

Steve,

They actually did not use the nitrite numbers in the calculation, because when they reread the method they realized that waste water does not need nitrite calculated in.

b. Wastewater treatment plant samples: Use high-quality reagent water (see Section 1080) for dilution water. Add no nitrification inhibitors if decay rates are desired. If seed and nutrients are necessary, add the same amounts of each to the dilution water blank. Use minimal sample dilution. As a rule of thumb, the ultimate BOD of the diluted sample should be in the range of 20 to 30 mg/L. Dilution to this level probably will require two or three sample reaerations during the incubation period to avoid having dissolved oxygen concentrations fall below 2 mg/L.

Use 2-L or larger BOD bottles (alternatively, multiple 300-mL BOD bottles) for each dilution. Add desired volume of sample to each bottle and fill with dilution water.

Fill a BOD bottle with dilution water to serve as a dilution water blank. Treat blank the same as all samples. Follow procedure given in ¶ 3*a* and incubate for at least as long as UBOD test.

I have attached the BOD results for the entire test. It was in an excel sheet where it went from left to right.

I hope I have been of some assistance.

Thanks,

Billy Shirley

Stephen E. Graves, P.E. / Senior Project Manager
Civil & Environmental Consultants, Inc.
4848 Park 370 Blvd., Suite F · Hazelwood, MO 63042
Toll-Free: (866) 250-3679 · Fax: (314) 656-4595
Mobile: (314) 330-7512 · http://www.cecinc.com
Senior Leadership · Integrated Services · Personal Business Relationships

---

From: Graves, Stephen
Sent: Wednesday, August 03, 2016 8:17 AM
To: 'Doug Mendoza'; Kamp, Kevin
Subject: RE: Ultimate BOD for Bridgeton Landfill

Sorry, I forgot.. I'll get it to you this week.

Steve

Stephen E. Graves, P.E. / Senior Project Manager
Civil & Environmental Consultants, Inc.
4848 Park 370 Blvd., Suite F · Hazelwood, MO 63042
Toll-Free: (866) 250-3679 · Fax: (314) 656-4595
Mobile: (314) 330-7512 · http://www.cecinc.com
Senior Leadership · Integrated Services · Personal Business Relationships

From: Doug Mendoza [mailto:DMENDOZA@stlmsd.com]
Sent: Wednesday, August 03, 2016 8:14 AM
To: Graves, Stephen; Kamp, Kevin
Subject: Ultimate BOD for Bridgeton Landfill

Folks,

I thought I was going to get a note from you explaining why the last ultimate BOD test wasn't valid. Would you please submit, so that there is a record? This is needed so that everyone can know that it's not just that the results weren't what you were hoping for.

---Doug

CHAIN OF CUSTODY RECORD

v10-0114 **REIC use ONLY** CLIENT ID _____ DATE _____ SHEET _____

REIC

Research Environmental & Industrial Consultants, Inc.

MAIN LABORATORY & CORPORATE HEADQUARTERS:
P.O. Box 286 · 225 Industrial Park Rd, Beaver, WV 25813
800-999-0105 · 304-255-2500 · www.reiclabs.com

MID-OHIO VALLEY Service Center
101 17th Street
Ashland, KY 41101
606-393-5027

SHENANDOAH Service Center
1557 Commerce Rd., Ste 201
Verona, VA 24482
540-248-0183

ROANOKE Service Center
3029-C Peters Creek Rd
Roanoke, VA 24019
540-777-1276

MORGANTOWN Service Center
16 Commerce Drive
Westover, WV 26501
304-241-5861

Client: Bridgeton Landfill, LLC PO # _____

Contact Person Steve Graves sgraves@cecinc.com Phone 314-330-7512

Address 13570 St. Charles Rock Road City Bridgeton State MO Zip 73044

Billing Address (if different) _____

City _____ State _____ Zip _____

Site ID & State Bridgeton Landfill, MO Project ID Bridgeton Landfill Sampler SEGraves

SAMPLE LOG & ANALYSIS REQUEST

TURNAROUND TIME

(●) NORMAL

RUSH TURNAROUND*

( ) 5 DAY ( ) 3 DAY ( ) 2 DAY ( ) 1 DAY

*Rush work needs prior laboratory approval and will incur additional charges

ANALYSIS & METHOD REQUESTED: 40 Day BOD

SAMPLE ID	No. & Type of Containers	Sampling Date/Time	Matrix	Sample Comp/Grab	a	a	a	a	a	a	a	a	a
					b	b	b	b	b	b	b	b	b
MH-013	4	5/19/16 12:30 pm	W Water	Grab	X								
St. Louis MSD seed	1	5/19/16 10:30 am	W Water	Grab									
			Choose	Choose									
			Choose	Choose									
			Choose	Choose									
			Choose	Choose									
			Choose	Choose									
			Choose	Choose									
			Choose	Choose									

ENTER PRESERVATIVE CODE(S):

0 None
1 Hydrochloric Acid
2 Nitric Acid
3 Sulfuric Acid
4 Sodium Thiosulfate
5 Sodium Hydroxide/ Sodium Arsenite
6 Sodium Hydroxide
7 Ascorbic Acid
8 Sodium Bisulfate/Methanol
9 Ammonium Chloride
10 _____ *
11 _____ *

(Use blanks for preservatives not listed.)

COMMENTS:

Please be sure to run nitrate and nitrite nitrogen as required so the nitrogenous BOD can be calculated and subtracted from the total BOD

All analytical requests are subject to REIC's Standard Terms and Conditions.

Temperature at arrival: °C ICED? Y___ N___

Containers provided by: [ ] REIC [ ] Client

1 Relinquished by (signature)	Date/Time	2 Relinquished by (signature)	Date/Time	3 Relinquished by (signature)	Date/Time
Received by (signature)	Date/Time	Received by (signature)	Date/Time	Received by (signature)	Date/Time

MSD 033568

Doug Mendoza

From: Rob G Daly
Sent: Wednesday, August 03, 2016 8:06 AM
To: Michael Grace; Doug Mendoza
Cc: John Lodderhose; Mark Bright; Kurt Bussman
Subject: RE: Bridgeton Landfill PS-1 Benzene Event

Mike

Thanks for the input. I realize you have no enforcement authority- that was meant for Doug.

We will contact the landfill and stick with our current SOP.

Rob Daly, P.E.
Division Manager- Pump Stations
Department of Operations
Metropolitan St Louis Sewer District
1025 Grand Glaize Parkway
Valley Park, MO 63088-1952
(636) 861-6706 (Office)

rdaly@stlmsd.com

From: Michael Grace
Sent: Wednesday, August 03, 2016 8:01 AM
To: Rob G Daly; Doug Mendoza
Cc: John Lodderhose; Mark Bright; Kurt Bussman
Subject: RE: Bridgeton Landfill PS-1 Benzene Event

Rob:

Your approach sounds sensible, and I think those are good recommendations. I do want to make one point clear, I do not have any enforcement authority or expertise regarding the landfill and its daily operation. I will continue to support your Safety and Health initiative for all your employees, which include providing external technical training for monitoring devices, arranging third party monitoring if and when you fell this is necessary, provide you information what is acceptable limits of exposure and required PPE and training.

From: Rob G Daly
Sent: Tuesday, August 02, 2016 2:34 PM
To: Doug Mendoza; Michael Grace
Cc: John Lodderhose; Mark Bright; Kurt Bussman
Subject: Bridgeton Landfill PS-1 Benzene Event

Doug/Mike

Thanks to Mark for running this down on District side.

if I could please add a few more additional thoughts:

1. We needed them (Landfill personnel) to 'respond' whenever our benzene meter goes off. The main thing we needed to know was: was that vacuum gas extraction system functioning properly at the time of the readings? It appears that it was and we got them to respond Y/N on that critical fact. We will develop a reporting tool in the next 90 plus days that essentially identifies the 'availability' of that system in terms of '% of time it is operating vs % of time it is NOT operating' and will use this as a 'check' on their assertions that their system is 'up' at any time we may receive a reading. Our new SCADA Historian will make this possible.

2. I suspect- and I understand the why- they (Landfill) will always be reluctant to make to positive an affirmation of the 'this was my fault and I need to solve it' part. Their (Landfill) response below was obviously pretty carefully crafted before they hit send- but they did what we asked them to do- which was to respond as to the 'what possibly occurred here'? This 'process' Mark just went through with them was designed on our end to ensure they know we will continue to hold them accountable for any benzene event- and that we investigate it promptly-and that they have a responsibility to investigate it as well- and identify their results to the District. Doug is being kept in the loop- as is RM- to ensure that if we get repeated events- we have some possible recourse, i.e. possibly go back to periodic air sampling events like we did before...

3. At this point- we in Pump Stations are willing to accept that this was probably a one off event and that we are not at risk in any systemic way- but needed all parties to know we were holding their feet to the fire and that we viewed this as a landfill problem to help resolve. If we have a second event in any kind of near term timeframe- we will be calling again and asking for more help on DEC and RM side and looking to go a more enforcement driven route if possible.

4. We have to be honest- our own Site Safety SOP was not followed with the diligence it required in this case. It specifically states that is incumbent on our field staff to notify supervision promptly of the event (did not occur in timeline it should have), and that we immediately call Landfill personnel to come over and validate our readings with their instrument (did not occur in timeline it should have)- so we have something to compare against and make sure it is not just our instrument's issues. In addition- this is our 'shot across the bows' to landfill staff that an evet has occurred and- if their instrument 'pops' too- they have pretty incontrovertible evidence that a problem exists. We have corrected this and re-trained with our pertinent field staff- and Mark has also pounded this point home in a series of shop and individual meetings with staff. We are a little bit the victims of our own success here- in that we have downgraded the sense of risk our field staff feel at the site- and thus they did not follow up with the sense of urgency they might have a year ago.

5. I agree with, and support, Mark's assertion that only if we get a hit on the meter should we call the landfill folks in. This is already our SOP and is what should have occurred this time. If we get a second event- my mind can easily change and we can go the route of calling landfill folks in for every visit. This would be a hassle that may not bring us any real benefit if we have to call them over while we are there for every visit. I see a lot of time wasted possibly standing around waiting on each other.

Does anyone have issues with this plan of action or approach at this time? If so- we are open to different courses of action and will gladly go any way you folks feel we need to. I think we on our end are just in a 'heads up- this happened' mode and are not feeling concerned – yet- until we get a second 'dot' on the trend line. At that point- I am in a different mode and it is probably back to big table meetings again....

Once we hear back from Doug and Mike on their thoughts- Mark can get with Landfill and identify that we just want to stick with current SOP and call each other only if we have an 'event'- which is already our SOP (or advise them of whatever Plan B needs to be) .

Thank you all for your work with us and help on this facility - it is always greatly appreciated.

Rob Daly, P.E.
Division Manager- Pump Stations

Department of Operations
Metropolitan St Louis Sewer District
1025 Grand Glaize Parkway
Valley Park, MO 63088-1952
(636) 861-6706 (Office)

rdaly@stlmsd.com

From: Mark Bright
Sent: Tuesday, August 02, 2016 2:05 PM
To: Doug Mendoza; Michael Grace; Kurt Bussman; Rob G Daly
Cc: John Lodderhose
Subject: RE: Bridgeton Landfill PS-1 Meeting Summary

I would prefer to move in the direction of when we are on site preforming routine maintenance, the landfill get informed only when we get high reading indicated with the benzene meter.

Thank You,

Mark Bright
Metropolitan St. Louis Sewer District
Operations Supervisor / County Pump
636-861-6735

mbright@stlmsd.com

From: Doug Mendoza
Sent: Tuesday, August 02, 2016 12:40 PM
To: Mark Bright; Michael Grace; Kurt Bussman
Cc: John Lodderhose
Subject: RE: Bridgeton Landfill PS-1 Meeting Summary

I would tend to agree with them that it is pretty difficult to determine what might have happened, if anything, given the fact that they weren't immediately aware and the system records show no anomalies. Their suggestion to be present with MSD at the time of all future readings for 2016 seems like a reasonable and good approach – assuming that Operations will have to wait for any excessive period of time for landfill staff.

---Doug

From: Mark Bright
Sent: Monday, August 01, 2016 2:14 PM
To: Michael Grace; Kurt Bussman; Doug Mendoza
Subject: FW: Bridgeton Landfill PS-1 Meeting Summary

Please review the following comments:

Thank You,

Mark Bright
Metropolitan St. Louis Sewer District
Operations Supervisor / County Pump
636-861-6735

mbright@stlmsd.com

From: Stewart, Matthew [mailto:MStewart6@republicservices.com]
Sent: Friday, July 29, 2016 4:09 PM

Doug Mendoza

Bridgeton Landfill

From: Doug Mendoza
Sent: Wednesday, August 03, 2016 7:08 AM
To: Mark Bright; Michael Grace; Kurt Bussman; Rob G Daly
Cc: John Lodderhose
Subject: RE: Bridgeton Landfill PS-1 Meeting Summary

Whatever works best for you. The main concern is that they be notified immediately.

From: Mark Bright
Sent: Tuesday, August 02, 2016 2:05 PM
To: Doug Mendoza; Michael Grace; Kurt Bussman; Rob G Daly
Cc: John Lodderhose
Subject: RE: Bridgeton Landfill PS-1 Meeting Summary

I would prefer to move in the direction of when we are on site preforming routine maintenance, the landfill get informed only when we get high reading indicated with the benzene meter.

Thank You,

Mark Bright
Metropolitan St. Louis Sewer District
Operations Supervisor / County Pump
636-861-6735

mbright@stlmsd.com

From: Doug Mendoza
Sent: Tuesday, August 02, 2016 12:40 PM
To: Mark Bright; Michael Grace; Kurt Bussman
Cc: John Lodderhose
Subject: RE: Bridgeton Landfill PS-1 Meeting Summary

I would tend to agree with them that it is pretty difficult to determine what might have happened, if anything, given the fact that they weren't immediately aware and the system records show no anomalies. Their suggestion to be present with MSD at the time of all future readings for 2016 seems like a reasonable and good approach – assuming that Operations will have to wait for any excessive period of time for landfill staff.

---Doug

From: Mark Bright
Sent: Monday, August 01, 2016 2:14 PM
To: Michael Grace; Kurt Bussman; Doug Mendoza
Subject: FW: Bridgeton Landfill PS-1 Meeting Summary

Please review the following comments:

Thank You,

Mark Bright
Metropolitan St. Louis Sewer District
Operations Supervisor / County Pump

Doug Mendoza

Bridgeton Landfill

From: Mark Bright
Sent: Monday, August 01, 2016 2:14 PM
To: Michael Grace; Kurt Bussman; Doug Mendoza
Subject: FW: Bridgeton Landfill PS-1 Meeting Summary

Please review the following comments:

Thank You,

Mark Bright
Metropolitan St. Louis Sewer District
Operations Supervisor / County Pump
636-861-6735

mbright@stlmsd.com

From: Stewart, Matthew [mailto:MStewart6@republicservices.com]
Sent: Friday, July 29, 2016 4:09 PM
To: Mark Bright
Cc: Fanning, Erin; Thompson, Ben
Subject: Brideton Landfill PS-1 Meeting Summary

Mark,

I am following up to provide a summary of the on-site meeting between MSD and Bridgeton Landfill Wednesday morning, and some ideas for moving forward. It is of the utmost importance to us that we fully address any health and safety concerns and we strive to do that at all times with the MSD team. While we were not aware of the elevated readings at the time to investigate them immediately, we have worked diligently with your team to develop as full an assessment as we can to ensure we are taking the necessary steps for worker health and safety. We look forward to your feedback and working with you to make sure our ongoing measures continue to be effective.

During our on-site meeting Wednesday:

- MSD personnel visited Bridgeton Landfill to discuss field readings measured by MSD personnel on 7/12.
- Potential reasons for false positive benzene detections were discussed including: not using a brand new benzene specific RAE-sep tube to conduct measurements, humidity or moisture being pulled into the meter pump during measurements, and the air flow pump stopping while conducting a measurement. It was recommended that MSD contact Pine Environmental for any troubleshooting or meter operation questions, as needed.
- The time stamp on the MSD UtlraRAE 3000 was checked against real time. It was discovered that the time stamp on the MSD meter is 15 minutes behind real time. Taking into account the 15 minute difference between the MSD meter and real time, Bridgeton Landfill referenced SCADA to determine if the PS-1 vacuum system was operational at the time of the readings on 7/12. The PS-1 vacuum system was operational at the time of the measurements in question on 7/12.
- MSD and Bridgeton Landfill personnel compared meters and determined that both MSD and Bridgeton utilize the same field meter, the UltraRAE 3000, for benzene detection. Both meters utilized a benzene specific RAE-Sep tube.
- Both meters were run concurrently to measure the wet well at PS-1. Prior to the benzene measurement, the wet well doors were opened and allowed to vent. Neither the MSD nor the Bridgeton LF meter detected benzene at the wet well.

- The MSD and Bridgeton Landfill field meters were then checked against benzene calibration gas on a known concentration (5 ppm). Calibration gas utilized by Bridgeton LF was used first, and then calibration gas utilized by MSD was used to check both meters against the known standard. Both meters read in the approximate range of 2.5 – 3.0 ppm range using the Bridgeton LF gas cylinder. The MSD field meter read approximately 4.45 ppm benzene utilizing the MSD calibration gas. The Bridgeton Landfill field meter read approximately 5.35 ppm benzene utilizing the MSD calibration gas.

Health and safety of our team and yours are the top priority for us, and we want to ensure that your staff are not only in a safe environment to perform work, but that they also feel confident of such. Given that there was vacuum being applied to the wet well during the timeframe over which these readings were collected, it is likely that the detections are indicative of potentially false positive readings as a result of equipment malfunction, humidity, or air flow complications. Since the delayed investigation into the circumstances surrounding these readings make certain diagnosis difficult, Bridgeton Landfill would like to offer to have one of our staff accompany MSD staff to PS1 to collect readings during any work that is completed for the remainder of 2016. Joint collection of data over this timeframe will allow us the opportunity to better understand any circumstances that may lead up to elevated readings and ensure the safety of our collective team. If you are in agreement with this approach, please let me know, and we can update the SOP and train our staff to incorporate these measures and facilitate this effort.

If you have any questions or comments, please let me know at your earliest convenience.

Thanks.

Matthew Stewart, R.G.
Environmental Specialist
Bridgeton Landfill

13570 St. Charles Rock Rd., Bridgeton, MO 63044
e mstewart6@republicservices.com
c (314) 477-6140
w www.republicservices.com

REPUBLIC SERVICES

We'll handle it from here.™

TO: **File**

FROM: Brian Gibson

DATE: July 29, 2016

RE: **BRIDGETON LANDFILL LLC**
WASTEWATER USER CHARGE BILLING
ACCOUNT NUMBER 0039145-8

Pursuant to the MSD Industrial Wastewater Discharge Permit for the above referenced facility, this facility will be billed for the following charges for the indicated billing period:

DISCHARGE PERIOD: **June 2016**

BILLING IS FOR: **On- Site Special Discharge**

SAMPLE POINT: **013**

Billing Item	Quantity	Units	Rate	Charge
Volume SP013 6/1 - 6/30	9,110	CcF	$ 3.21 /CcF	$29,243.10
COD Extra-Strength Surcharge	1,690	mg/L	$ 316.19 /ton	$9,795.97
Volume Forcemain Flush	82	CcF	$ 3.21 /CcF	$263.22
Total	--	--	--	**$39,302.29**

If you have any questions, please call me at extension 8784.

bv

ec: Doug Mendoza
Angie McDonough
Bridgeton Republic Services

FILE: IU, Bridgeton Landfill LLC, 1003-8030-00

Engineering for a Better World
FEEZOR ENGINEERING, INC.

CB
8-05

July 27, 2016

Mr. Chris Bulmahn
Associate Engineer
Metropolitan St. Louis Sewer District
Division of Environmental Compliance
10 East Grand Avenue
St. Louis, MO 63147-2913

RE: Second Quarter 2016 Self-Monitoring Report
Bridgeton Landfill LLC, Bridgeton, Missouri
Discharge Permit No. 1003803000 - 1

Dear Mr. Bulmahn:

On behalf of Bridgeton Landfill, LLC, Feezor Engineering, Inc. (FEI) is submitting the Self-Monitoring Report for the Second Quarter 2016 leachate sampling event at the Bridgeton Landfill.

As required by Permit No. 1003803000-1, the following composite samples were collected during the Second Quarter 2016 monitoring period:

- On April 4, 2016, Civil and Environmental Consultants, Inc. (CEC) personnel collected composite samples of treated leachate from Bridgeton sampling point 013 for analysis of non-radionuclide constituents; and
- On May 10 - 11, 2016, FEI personnel collected composite samples of treated leachate from Bridgeton Landfill sampling point 013 for analysis of radionuclide constituents.

No leachate was hauled (sample point 014) during the second quarter of 2016.

In accordance with a March 21, 2014 telephone conversation between Mr. Ed Galbraith of Barr Engineering Company (Barr) and the Missouri Department of Natural Resources (MDNR), an additional composite sample was collected by FEI from sampling point 013 for analysis of Total Dissolved Solids (TDS) and Total Suspended Solids (TSS) concurrently with the collection of the composite samples for radioactive constituent analysis. TDS and TSS composite sample was analyzed by the Eberline Services facility located in Oak Ridge, Tennessee (Eberline).

The analytical results of the sampling at point 013 indicate that the concentrations of analyzed constituents were within Permit-established limits.

RECEIVED
JUL 28 2016
DIVISION OF
ENVIRONMENTAL COMPLIANCE

3377 Hollenberg Drive • Bridgeton, MO 63044

Attachment 1 provides the MSD Industrial Self-Monitoring Report forms and Radioactive Material Discharge Report form for Second Quarter 2016 monitoring event results for sampling location 013.

Attachment 2 provides the laboratory analytical reports for non-radiological parameters reported from the samples collected from location 013.

Attachment 3 provides a portion of the laboratory analytical report for radiological parameters reported from the samples collected from location 013. Pursuant to an April 11, 2016 telephone conversation between Mr. Doug Mendoza of Metropolitan St. Louis Sewer District (MSD) and Mr. Jonathan Wilkinson of FEI, the portions of the Eberline report to be included with quarterly self-monitoring reports are to consist of the laboratory case narrative, Chain of Custody (COC) information, and data summary tables. If requested, the facility will provide the Eberline analytical report in its entirety.

Attachment 4 presents the calculations used to determine the amount of radionuclide activity discharged during the Second Quarter 2016 monitoring period.

Attachment 5 presents monthly leachate volume records for the Bridgeton Landfill for April, May, and June 2016.

Selected results presented in the laboratory analytical reports have been qualified by Eberline. As stated in the laboratory analytical report case narrative provided in **Attachment 4** (Calculation of Discharged Activity):

For Gross Gamma:

> *Sample demonstrated acceptable results for all gamma-emitting radionuclides as reported. Results for "Gross Gamma" were derived from Potassium-40 since this is the only true positive gamma emitting radionuclide. In this case, there are no real positive gamma emitting radionuclides in these samples and most results are reported from the Canberra "non-identified" radionuclides report. The method blank demonstrated acceptable results for all radionuclides as reported.*

If you have any questions regarding the information provided in this letter, please contact Erin Fanning, Environmental Manager at 209-227-9531, or the undersigned if you have any questions or comments.

Sincerely,

Jonathan E. Wilkinson, P.E.
Residuals Management Team Member

Cc: Erin Fanning – Bridgeton Landfill
Mark Milward – St. Louis County Department of Health
Steve Graves – Civil & Environmental Consultants, Inc. (PDF via electronic mail)

Attachments:

Attachment 1 – MSD Industrial User Reporting Forms and Radioactive Material Discharge Report Form
Attachment 2 – Laboratory Analytical Reports for Non-Radiological Parameters Collected from Location 013
Attachment 3 –Laboratory Analytical Report for Radiological Parameters Collected from Location 013
Attachment 4 – Calculation of Discharged Activity
Attachment 5 – Monthly Leachate Volume Records

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METROPOLITAN ST. LOUIS SEWER DISTRICT
INDUSTRIAL USER SELF MONITORING REPORT

CB 8.05

PART I: IDENTIFYING INFORMATION

Company Name: BRIDGETON LANDFILL LLC

Permit No: 1003803000 - 1 Effective Date: September 01, 2014 Expiration Date: August 31, 2019

Premise Address: 13570 St. Charles Rock Road, Bridgeton, MO 63044

Monitoring Period: ☐(JAN-MAR) ☑(APR-JUNE) ☐(JULY-SEPT) ☐(OCT-DEC)

Samples Collected By: SEGraves/RJones

Analyses Performed By: Pace Analytical

PART II: ANALYTICAL RESULTS OF SELF MONITORING

MSD SAMPLE POINT REFERENCE NUMBERS ⇨		013						
DATES ON WHICH SAMPLES WERE COLLECTED ⇨		4/5/2016						
TIMES AT WHICH SAMPLES WERE COLLECTED ⇨		1205-2300						
PARAMETER	LIMIT	RECORD SAMPLE TYPES (G, C, M OR E) AND RESULTS BELOW (G=grab, C=composite, M=measured flow, E=estimated flow)						UNITS
Flow		M	313,957	M		M		GPD
Biochemical Oxygen Demand (5 Day)		C	22.3	C		C		mg/L
Chemical Oxygen Demand		C	1610	C		C		mg/L
Total Suspended Solids		C	15	C		C		mg/L
Temperature [Deg C]	60	G	29.8	G		G		°C
PH	11.5	G	8.75	G		G		SU
PH	5.5	G	7.95	G		G		SU
Transmittance Unfiltered		C	*17.5	C		C		mg/L
Ammonia (as N)		C	261	C		C		
Gross Alpha								
Gross Beta								
Gross Gamma								
Radium-226								pci/L
Radium-228								pci/L
Uranium (Total)								mg/L
Uranium-natural								pci/L
Arsenic (Total)	0.77	C	0.257	C		C		mg/L
Benzene	0.14	G	ND	G	< 0.005	G		mg/L
Cadmium (Total)	0.7	C	ND	C	< 0.005	C		mg/L

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You must complete and sign the certification statements on the second page.

1

*Absorbance from lab sheet = 17.5 cm⁻¹

⇒ Transmittance = 3.16 -16 % → 0% CB

METROPOLITAN ST. LOUIS SEWER DISTRICT
INDUSTRIAL USER SELF MONITORING REPORT

PART I: IDENTIFYING INFORMATION

Company Name: BRIDGETON LANDFILL LLC

Permit No: 1003803000 - 1 Effective Date: September 01, 2014 Expiration Date: August 31, 2019

Premise Address: 13570 St. Charles Rock Road, Bridgeton, MO 63044

Monitoring Period: ☐(JAN-MAR) ☑(APR-JUNE) ☐(JULY-SEPT) ☐(OCT-DEC)

Samples Collected By: SEGraves/RJones

Analyses Performed By: Pace Analytical

PART II: ANALYTICAL RESULTS OF SELF MONITORING

MSD SAMPLE POINT REFERENCE NUMBERS ⇨		013						
DATES ON WHICH SAMPLES WERE COLLECTED ⇨		4/5/2016						
TIMES AT WHICH SAMPLES WERE COLLECTED ⇨		1205-2300						
PARAMETER	LIMIT	RECORD SAMPLE TYPES (G, C, M OR E) AND RESULTS BELOW (G=grab, C=composite, M=measured flow, E=estimated flow)						UNITS
Chromium (Total) [mg/L]		C	0.0257					mg/L
Copper (Total) [mg/L]		C	ND		<0.010			mg/L
Iron (Total) [mg/L]		C	0.248					mg/L
Lead (Total) [mg/L]		C	ND		<0.005			mg/L
Magnesium (Total) [mg/L]		C	39.9					mg/L
Mercury (Total) [mg/L]		C	ND		<0.00020			mg/L
Nickel (Total) [mg/L]		C	0.0184					mg/L
Oil and Grease (Total) [mg/L]		G	11.7					mg/L
Silver (Total) [mg/L]		C	ND		<0.007			mg/L
Zinc (Total) [mg/L]		C	0.0831					mg/L
Total Phenols [mg/L]		G	0.6125					mg/L
Total Toxic Organics [mg/L]		G	0.167					mg/L

You must complete and sign the certification statements on the second page.

METROPOLITAN ST. LOUIS SEWER DISTRICT
INDUSTRIAL USER SELF MONITORING REPORT

PART I: IDENTIFYING INFORMATION

Company Name: BRIDGETON LANDFILL LLC

Permit No: 1003803000 - 1 Effective Date: September 01, 2014 Expiration Date: August 31, 2019

Premise Address: 13570 St. Charles Rock Road, Bridgeton, MO 63044

Monitoring Period: ☐(JAN-MAR) ☑(APR-JUNE) ☐(JULY-SEPT) ☐(OCT-DEC)

Samples Collected By: No Discharges from Sample Point 014

Analyses Performed By: _____

PART II: ANALYTICAL RESULTS OF SELF MONITORING

MSD SAMPLE POINT REFERENCE NUMBERS ⇨		014						
DATES ON WHICH SAMPLES WERE COLLECTED ⇨								
TIMES AT WHICH SAMPLES WERE COLLECTED ⇨								
PARAMETER	LIMIT	RECORD SAMPLE TYPES (G, C, M OR E) AND RESULTS BELOW (G=grab, C=composite, M=measured flow, E=estimated flow)						UNITS
Flow (daily avg)		M	NA	M		M		GPD
Biochemical Oxygen Demand (5 Day) (daily avg)		C	NA	C		C		mg/L
Chemical Oxygen Demand (daily avg)		C	NA	C		C		mg/L
Total Suspended Solids (daily avg)		C	NA	C		C		mg/L
Temperature [Deg C] (daily avg)		G	NA	G		G		°C
PH (daily avg)		G	NA	G		G		SU
PH (daily avg)		G	NA	G		G		SU
Ammonia (as N) (daily avg)		C	NA	C		C		
Gross Alpha (daily avg)								
Gross Beta (daily avg)								
Gross Gamma (daily avg)								
Radium-226								pci/L
Radium-228								pci/L
Uranium (Total)								mg/L
Uranium-natural								pci/L
Arsenic (Total)		C	NA	C		C		mg/L
Benzene	0.14	G	NA	G		G		mg/L
Cadmium (Total) (daily avg)		C	NA	C		C		mg/L
Chromium (Total) (daily avg)		C	NA	C		C		mg/L

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METROPOLITAN ST. LOUIS SEWER DISTRICT
INDUSTRIAL USER SELF MONITORING REPORT

PART I: IDENTIFYING INFORMATION

Company Name: BRIDGETON LANDFILL LLC

Permit No: 1003803000 - 1 Effective Date: September 01, 2014 Expiration Date: August 31, 2019

Premise Address: 13570 St. Charles Rock Road, Bridgeton, MO 63044

Monitoring Period: ☐(JAN-MAR) ☑(APR-JUNE) ☐(JULY-SEPT) ☐(OCT-DEC)

Samples Collected By: No Discharges from Sample Point 014

Analyses Performed By: _____

PART II: ANALYTICAL RESULTS OF SELF MONITORING

MSD SAMPLE POINT REFERENCE NUMBERS ⇨		014						
DATES ON WHICH SAMPLES WERE COLLECTED ⇨								
TIMES AT WHICH SAMPLES WERE COLLECTED ⇨								
PARAMETER	LIMIT	RECORD SAMPLE TYPES (G, C, M OR E) AND RESULTS BELOW (G=grab, C=composite, M=measured flow, E=estimated flow)						UNITS
Copper (Total) [mg/L] (daily avg)		C	NA					mg/L
Iron (Total) [mg/L] (daily avg)		C	NA					mg/L
Lead (Total) [mg/L] (daily avg)		C	NA					mg/L
Magnesium (Total) [mg/L] (daily avg)		C	NA					mg/L
Mercury (Total) [mg/L] (daily avg)		C	NA					mg/L
Nickel (Total) [mg/L] (daily avg)		C	NA					mg/L
Oil and Grease (Total) [mg/L] (daily avg)		G	NA					mg/L
Silver (Total) [mg/L] (daily avg)		C	NA					mg/L
Zinc (Total) [mg/L] (daily avg)		C	NA					mg/L
Total Phenols [mg/L]Total (daily avg)		G	NA					mg/L
Toxic Organics [mg/L] (daily avg)		G	NA					mg/L
								mg/L

You must complete and sign the certification statements on the second page.

METROPOLITAN ST. LOUIS SEWER DISTRICT
INDUSTRIAL USER SELF MONITORING REPORT

PART I: IDENTIFYING INFORMATION

Company Name: BRIDGETON LANDFILL LLC

Permit No: **1003803000 – 1** Effective Date: **September 1, 2014** Expiration Date: **August 31, 2019**

Premise Address: 13570 St. Charles Rock Road

Monitoring Period: ☐ (JAN-MAR) ☑ (APR-JUNE) ☐ (JULY-SEPT) ☐ (OCT-DEC)

Samples Collected By: **Jonathan Wilkinson & Michael Spurgeon – Feezor Engineering, Inc.**

Analyses Performed By: **Eberline Services**

PART II: ANALYTICAL RESULTS OF SELF MONITORING

MSD SAMPLE POINT REFERENCE NUMBERS ⇨		013		014				
DATES ON WHICH SAMPLES WERE COLLECTED ⇨		5/10 - 5/11/2016						
TIMES AT WHICH SAMPLES WERE COLLECTED ⇨		11:35, 15:55, 07:50, 11:20						
PARAMETER	LIMIT	RECORD SAMPLE TYPES (G, C, M OR E) AND RESULTS BELOW (G=grab, C=composite, M=measured flow, E=estimated flow)						UNITS
Flow			142,200 ✓		N/A[2]			GPD
Total Dissolved Solids	***	C	3,239 ✓	C	N/A[2]			mg/L
Total Suspended Solids	***	C	104 ✓	C	N/A[2]			mg/L
Gross Alpha	***	C	< MDA ✓ < 40.1	C	N/A[2]			pCi/L
Gross Beta	***	C	130 ± 25 ✓	C	N/A[2]			pCi/L
Gross Gamma	***	C	202 ± 63[1] ✓	C	N/A[2]			pCi/L
Radium – 226	600	C	< MDA ✓ < 0.686	C	N/A[2]			pCi/L
Radium – 228	600	C	< MDA ✓ < 1.65	C	N/A[2]			pCi/L
Uranium (Total)		C	< MDA ✓ < 1.06	C	N/A[2]			µg/L
Uranium (Natural)	3000	C	0.55 ✓	C	N/A[2]			pCi/L

Notes:

[1] Sample demonstrated acceptable results for all gamma-emitting radionuclides as reported. Results for "Gross Gamma" were derived from Potassium-40 since this is the only true positive gamma emitting radionuclide. In this case, there are no real positive gamma emitting radionuclides in these samples and most results are reported from the Canberra "non-identified" radionuclides report. The method blank demonstrated acceptable results for all radionuclides as reported.

[2] No leachate was hauled (sample location 014) from the facility during the second quarter of 2016.

You must complete and sign the certification statements on the second page.

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PART III: SPECIAL CERTIFICATION STATEMENTS

Based on the special conditions contained in your discharge permit you may be required to certify the following. Please review your permit and **PLACE YOUR INITIALS ON THE LINES NEXT TO THE CERTIFICATIONS.**

O	NO DISCHARGE OF HAZARDOUS HAULED WASTE
	For permit special conditions that prohibit discharge of hazardous waste to the District, you are required to make the following certification:
	EJF I certify, since the last discharge monitoring report, there has been no discharge of hazardous waste to the District.

PART IV: GENERAL CERTIFICATION STATEMENTS

B	DISCHARGE MONITORING REPORT CERTIFICATION
	All permittees must sign and complete the information below:
	I certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.
	Print or type name of signing official: **Erin Fanning**
	Title: **Division Manager** Telephone: **209-227-9531**
	Signature: Erin Fanning Date: 7-26-2016

METROPOLITAN ST. LOUIS SEWER DISTRICT
INDUSTRIAL USER RADIOACTIVE MATERIALS DISCHARGE REPORT

03
4.05

Part I: Identifying Information

Company Name: Bridgeton Landfill, LLC

Permit No.: 1003803000 - 1

Premise Address: 13570 St. Charles Rock Road, Bridgeton, MO 63044

Monitoring Period: ☐ (Jan-Mar) ☑ (Apr-Jun) ☐ (July-Sept) ☐ (Oct-Dec)

Part II: Record of Disposal of Radioactive Materials to the Sewer System

Radionuclide	Activity Discharged (Picocuries)
Gross Alpha	N/A
Gross Beta	1.00×10^{10}
Gross Gamma	1.56×10^{10}
Radium - 226	N/A
Radium - 228	N/A
Total Uranium (Uranium – 234 plus Uranium – 235 plus Uranium – 238)	4.24×10^{7}
Total Activity Discharged:	2.56×10^{10}

Notes:
N/A: Not applicable. Constituent below Minimum Detectable Activity.

Part III: Certification Statements

Place your initials in the box under item A.
Everyone must complete the information under items A & B and sign this report.

A. Certification of Compliance with Federal regulations

☒ I certify that to the best of my knowledge & belief, all requirements of 10 CFR Part 20, Appendix B, Table 3 governing disposal by release into sanitary sewage for material regulated by the Nuclear Regulatory Commission have been met for the period covered by this report.

B. Radioactive Materials Discharge Report Certification

I certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information submitted is , to the best of my knowledge and belief, true c, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Print or type name of signing official: Erin Fanning

Title: Division Manager

Telephone: 209-227-9531

Signature: Erin Fanning

Date: 7-26-2016

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DIVISION OF
ENVIRONMENTAL COMPLIANCE

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: BRIDGETON LPTP 013
Pace Project No.: 60216330

Sample: LPTP-MH013-UVT **Lab ID: 60216330001** Collected: 04/05/16 12:05 Received: 04/06/16 11:10 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
UV254	Analytical Method: SM 5910							
U254 UV Absorbing Organic	**17.5**	cm-1	0.50	100		04/06/16 16:19		
U254 UV Absorbing Organic Dup	**17.5**	cm-1	0.50	100		04/06/16 16:19		

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REPORT OF LABORATORY ANALYSIS

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MSD 033586

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: BRIDGETON LPTP 013
Pace Project No.: 60216330

QC Batch: WET/36960
QC Batch Method: SM 5910
Analysis Method: SM 5910
Analysis Description: UV254 UV Absorbing Organics
Associated Lab Samples: 60216330001

METHOD BLANK: 1530671
Matrix: Water
Associated Lab Samples: 60216330001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
U254 UV Absorbing Organic	cm-1	ND	0.0050	04/06/16 16:19	
U254 UV Absorbing Organic Dup	cm-1	ND	0.0050	04/06/16 16:19	

LABORATORY CONTROL SAMPLE: 1530672

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
U254 UV Absorbing Organic	cm-1	.009	0.0070	78	75-125	
U254 UV Absorbing Organic Dup	cm-1	.009	0.0070	78	75-125	

SAMPLE DUPLICATE: 1530673

Parameter	Units	92292473001 Result	Dup Result	RPD	Max RPD	Qualifiers
U254 UV Absorbing Organic	cm-1	0.058	0.058	1	20	
U254 UV Absorbing Organic Dup	cm-1	0.058	0.058	1	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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Date: 04/20/2016 04:13 PM

MSD 033587

Pace Analytical Florida Laboratory	Document Name: Sample Condition Upon Receipt Form	Document Revised: December 28, 2015
	Document No.: F-FL-C-007 rev. 07	Issuing Authority: Pace Florida Quality Office

Sample Condition Upon Receipt Form (SCUR)

Project #
Project Manager:
Client:

Date and Initials of person examining contents: TH 4/6/16
Label:
Deliver:
pH:

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other ☐
Shipping Method: ☐ First Overnight ☐ Priority Overnight ☑ Standard Overnight ☐ Ground
Billing: ☐ Recipient ☑ Sender ☐ Third Party ☐ Unkown Cooler Size if Applicable:
Tracking # 6703 1641 1649

Custody Seal on Cooler/Box Present: ☑ yes ☐ no Seals intact: ☑ yes ☐ no
Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other Biological Tissue is Frozen: Yes No N/A
Thermometer Used T288 Type of Ice: (Wet) Blue None ☐ Samples on ice, cooling process has begun
Cooler #1 Temperature°C 4.0 (Visual) 0 (Correction Factor) 4.0 (Actual)
Cooler #2 Temperature°C (Visual) (Correction Factor) (Actual)
Cooler #3 Temperature°C (Visual) (Correction Factor) (Actual)
Cooler #4 Temperature°C (Visual) (Correction Factor) (Actual)
Cooler #5 Temperature°C (Visual) (Correction Factor) (Actual)
Cooler #6 Temperature°C (Visual) (Correction Factor) (Actual)

Temp should be above freezing to 6°C

		Comments:
Chain of Custody Present	☑Yes ☐No ☐N/A	
Chain of Custody Filled Out	☑Yes ☐No ☐N/A	
Relinquished Signature & Sampler Name COC	☐Yes ☑No ☐N/A	
Samples Arrived within Hold Time	☑Yes ☐No ☐N/A	
Rush TAT requested on COC	☐Yes ☑No ☐N/A	
Sufficient Volume	☑Yes ☐No ☐N/A	
Correct Containers Used	☑Yes ☐No ☐N/A	
Pace Containers Used	☑Yes ☐No ☐N/A	
Containers Intact	☑Yes ☐No ☐N/A	
Sample Labels match COC (sample IDs & date/time of collection)	☑Yes ☐No ☐N/A	
All containers needing acid/base preservation have been checked.	☐Yes ☐No ☑N/A	HNO3 pH<2 HCl pH<2
All Containers needing preservation are found to be in compliance with EPA recommendation: Exceptions: VOA, Coliform, TOC, O&G	☐Yes ☐No ☑N/A	H2SO4 pH<2 NaOH pH>12 NaOH/ZnOAc pH>9
No Headspace in VOA Vials (>6mm):	☐Yes ☐No ☑N/A	
Trip Blank Present:	☐Yes ☐No ☑N/A	

Client Notification/ Resolution:

Person Contacted: Date/Time:

Comments/ Resolution (use back for additional comments):

Project Manager Review: Date:

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MSD 033588

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Republic Services	Report To:	Derek Bouchard	Attention:	AMY HARGROVE
Address:	13570 St. Charles Rock Rd	Copy To:	Kevin Kamp (kkamp@cecinc.com)	Company Name:	REPUBLIC SERVICES
	Bridgeton, MO 63044		Natalie Lafata/CEC, Barr validation group	Address:	BRIDGETON, MO 63044
Email To:	dbouchard@republicservices.com	Purchase Order No.:		Pace Quote Reference:	
Phone:	314-302-3634 Fax:	Project Name:	BRIDGETON LPTP 013	Pace Project Manager:	Angie Brown 913-563-1402
Requested Due Date/TAT:		Project Number:		Pace Profile #:	7979

REGULATORY AGENCY: ☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☑ OTHER

Site Location STATE: MO

Section D Required Client Information

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N)	UV 254	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	LPTP-MW013-UVT	WT		[illegible]		4/5/16	1205		1	1									X		DIRECT SHIP TO
2																					PACE FLORIDA
3																					
4																					
5																					
6																					SAMPLING POINT REF 013
7																					
8																					
9																					
10																					
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PO# 5558082				TDH	4/6/16	1110	4.0	Y	Y	
							T298			

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Natalie Lafata

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 4/5/16

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.08, 12-Oct-2007

MSD 033589

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: BRIDGETON PERMEAT 013
Pace Project No.: 60216402

Sample: LPTP-00 TRIP BLANK **Lab ID: 60216402001** Collected: 04/05/16 00:00 Received: 04/07/16 04:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
624 Volatile Organics	Analytical Method: EPA 624 Low							
Benzene	ND	ug/L	1.0	1		04/08/16 00:10	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	1		04/08/16 00:10	75-27-4	
Bromoform	ND	ug/L	1.0	1		04/08/16 00:10	75-25-2	
Bromomethane	ND	ug/L	5.0	1		04/08/16 00:10	74-83-9	
Carbon tetrachloride	ND	ug/L	1.0	1		04/08/16 00:10	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		04/08/16 00:10	108-90-7	
Chloroethane	ND	ug/L	1.0	1		04/08/16 00:10	75-00-3	
2-Chloroethylvinyl ether	ND	ug/L	10.0	1		04/08/16 00:10	110-75-8	c2
Chloroform	ND	ug/L	1.0	1		04/08/16 00:10	67-66-3	
Chloromethane	ND	ug/L	1.0	1		04/08/16 00:10	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	1		04/08/16 00:10	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		04/08/16 00:10	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		04/08/16 00:10	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		04/08/16 00:10	106-46-7	
1,1-Dichloroethane	ND	ug/L	1.0	1		04/08/16 00:10	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		04/08/16 00:10	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1		04/08/16 00:10	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		04/08/16 00:10	156-59-2	N2
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		04/08/16 00:10	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		04/08/16 00:10	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		04/08/16 00:10	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		04/08/16 00:10	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	1		04/08/16 00:10	100-41-4	
Methylene chloride	ND	ug/L	1.0	1		04/08/16 00:10	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		04/08/16 00:10	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		04/08/16 00:10	127-18-4	
Toluene	ND	ug/L	1.0	1		04/08/16 00:10	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		04/08/16 00:10	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		04/08/16 00:10	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		04/08/16 00:10	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		04/08/16 00:10	75-69-4	
Vinyl chloride	ND	ug/L	1.0	1		04/08/16 00:10	75-01-4	
Xylene (Total)	ND	ug/L	3.0	1		04/08/16 00:10	1330-20-7	N2
Surrogates								
4-Bromofluorobenzene (S)	104	%	87-112	1		04/08/16 00:10	460-00-4	
Toluene-d8 (S)	102	%	94-110	1		04/08/16 00:10	2037-26-5	
1,2-Dichloroethane-d4 (S)	99	%	84-112	1		04/08/16 00:10	17060-07-0	
Preservation pH	**7.0**		1.0	1		04/08/16 00:10		

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ANALYTICAL RESULTS

Project: BRIDGETON PERMEAT 013
Pace Project No.: 60216402

Sample: LPTP-P02,03,07,08,09-013 **Lab ID: 60216402002** Collected: 04/05/16 12:05 Received: 04/07/16 04:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
625 MSSV	Analytical Method: EPA 625 Preparation Method: EPA 625							
Acenaphthene	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	83-32-9	
Acenaphthylene	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	208-96-8	
Anthracene	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	120-12-7	
Benzidine	ND	ug/L	255	5	04/11/16 00:00	04/12/16 23:17	92-87-5	
Benzo(a)anthracene	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	56-55-3	
Benzo(a)pyrene	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	207-08-9	
4-Bromophenylphenyl ether	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	101-55-3	
Butylbenzylphthalate	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	85-68-7	
4-Chloro-3-methylphenol	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	59-50-7	
bis(2-Chloroethoxy)methane	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/L	30.6	5	04/11/16 00:00	04/12/16 23:17	111-44-4	
bis(2-Chloroisopropyl) ether	ND	ug/L	30.6	5	04/11/16 00:00	04/12/16 23:17	39638-32-9	
2-Chloronaphthalene	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	91-58-7	
2-Chlorophenol	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	7005-72-3	
Chrysene	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	53-70-3	
3,3'-Dichlorobenzidine	ND	ug/L	102	5	04/11/16 00:00	04/12/16 23:17	91-94-1	
2,4-Dichlorophenol	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	120-83-2	
Diethylphthalate	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	84-66-2	
2,4-Dimethylphenol	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	105-67-9	
Dimethylphthalate	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	131-11-3	
Di-n-butylphthalate	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/L	128	5	04/11/16 00:00	04/12/16 23:17	534-52-1	
2,4-Dinitrophenol	ND	ug/L	255	5	04/11/16 00:00	04/12/16 23:17	51-28-5	
2,4-Dinitrotoluene	ND	ug/L	30.6	5	04/11/16 00:00	04/12/16 23:17	121-14-2	
2,6-Dinitrotoluene	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	606-20-2	
Di-n-octylphthalate	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	117-84-0	
bis(2-Ethylhexyl)phthalate	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	117-81-7	
Fluoranthene	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	206-44-0	
Fluorene	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	87-68-3	
Hexachlorobenzene	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	118-74-1	
Hexachlorocyclopentadiene	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	77-47-4	
Hexachloroethane	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	193-39-5	
Isophorone	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	78-59-1	
Naphthalene	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	91-20-3	
Nitrobenzene	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	98-95-3	
2-Nitrophenol	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	88-75-5	
4-Nitrophenol	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	100-02-7	
N-Nitrosodimethylamine	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	62-75-9	
N-Nitroso-di-n-propylamine	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	621-64-7	
N-Nitrosodiphenylamine	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	86-30-6	

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ANALYTICAL RESULTS

Project: BRIDGETON PERMEAT 013
Pace Project No.: 60216402

Sample: LPTP-P02,03,07,08,09-013 **Lab ID: 60216402002** Collected: 04/05/16 12:05 Received: 04/07/16 04:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
625 MSSV	Analytical Method: EPA 625 Preparation Method: EPA 625							
Pentachlorophenol	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	87-86-5	
Phenanthrene	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	85-01-8	
Phenol	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	108-95-2	
Pyrene	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	129-00-0	
1,2,4-Trichlorobenzene	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	120-82-1	
2,4,6-Trichlorophenol	ND	ug/L	25.5	5	04/11/16 00:00	04/12/16 23:17	88-06-2	
Surrogates								
Nitrobenzene-d5 (S)	91	%	33-120	5	04/11/16 00:00	04/12/16 23:17	4165-60-0	D3
2-Fluorobiphenyl (S)	87	%	39-120	5	04/11/16 00:00	04/12/16 23:17	321-60-8	
Terphenyl-d14 (S)	97	%	45-120	5	04/11/16 00:00	04/12/16 23:17	1718-51-0	
Phenol-d6 (S)	45	%	11-120	5	04/11/16 00:00	04/12/16 23:17	13127-88-3	
2-Fluorophenol (S)	50	%	17-120	5	04/11/16 00:00	04/12/16 23:17	367-12-4	
2,4,6-Tribromophenol (S)	93	%	39-120	5	04/11/16 00:00	04/12/16 23:17	118-79-6	
624 Volatile Organics	Analytical Method: EPA 624 Low							
Benzene	ND	ug/L	5.0	5		04/08/16 00:24	71-43-2	
Bromodichloromethane	ND	ug/L	5.0	5		04/08/16 00:24	75-27-4	
Bromoform	ND	ug/L	5.0	5		04/08/16 00:24	75-25-2	
Bromomethane	ND	ug/L	25.0	5		04/08/16 00:24	74-83-9	
Carbon tetrachloride	ND	ug/L	5.0	5		04/08/16 00:24	56-23-5	
Chlorobenzene	ND	ug/L	5.0	5		04/08/16 00:24	108-90-7	
Chloroethane	ND	ug/L	5.0	5		04/08/16 00:24	75-00-3	
2-Chloroethylvinyl ether	ND	ug/L	50.0	5		04/08/16 00:24	110-75-8	M1,c2
Chloroform	ND	ug/L	5.0	5		04/08/16 00:24	67-66-3	
Chloromethane	ND	ug/L	5.0	5		04/08/16 00:24	74-87-3	
Dibromochloromethane	ND	ug/L	5.0	5		04/08/16 00:24	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	5.0	5		04/08/16 00:24	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	5.0	5		04/08/16 00:24	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	5.0	5		04/08/16 00:24	106-46-7	
1,1-Dichloroethane	ND	ug/L	5.0	5		04/08/16 00:24	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	5		04/08/16 00:24	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	5		04/08/16 00:24	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	5.0	5		04/08/16 00:24	156-59-2	N2
trans-1,2-Dichloroethene	ND	ug/L	5.0	5		04/08/16 00:24	156-60-5	
1,2-Dichloropropane	ND	ug/L	5.0	5		04/08/16 00:24	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	5.0	5		04/08/16 00:24	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	5.0	5		04/08/16 00:24	10061-02-6	
Ethylbenzene	ND	ug/L	5.0	5		04/08/16 00:24	100-41-4	
Methylene chloride	ND	ug/L	5.0	5		04/08/16 00:24	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	5		04/08/16 00:24	79-34-5	
Tetrachloroethene	ND	ug/L	5.0	5		04/08/16 00:24	127-18-4	
Toluene	ND	ug/L	5.0	5		04/08/16 00:24	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	5.0	5		04/08/16 00:24	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	5		04/08/16 00:24	79-00-5	
Trichloroethene	ND	ug/L	5.0	5		04/08/16 00:24	79-01-6	
Trichlorofluoromethane	ND	ug/L	5.0	5		04/08/16 00:24	75-69-4	
Vinyl chloride	ND	ug/L	5.0	5		04/08/16 00:24	75-01-4	

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ANALYTICAL RESULTS

Project: BRIDGETON PERMEAT 013
Pace Project No.: 60216402

Sample: LPTP-P02,03,07,08,09-013 **Lab ID: 60216402002** Collected: 04/05/16 12:05 Received: 04/07/16 04:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
624 Volatile Organics	Analytical Method: EPA 624 Low							
Xylene (Total)	ND	ug/L	15.0	5		04/08/16 00:24	1330-20-7	N2
Surrogates								
4-Bromofluorobenzene (S)	101	%	87-112	5		04/08/16 00:24	460-00-4	F1
Toluene-d8 (S)	101	%	94-110	5		04/08/16 00:24	2037-26-5	
1,2-Dichloroethane-d4 (S)	105	%	84-112	5		04/08/16 00:24	17060-07-0	
Preservation pH	**8.0**		1.0	5		04/08/16 00:24		
HEM, Oil and Grease	Analytical Method: EPA 1664A							
Oil and Grease	**11.7**	mg/L	5.0	1		04/15/16 09:31		
Phenolics, Total Recoverable	Analytical Method: EPA 420.1							
Phenolics, Total Recoverable	ND	mg/L	0.050	1		04/13/16 11:54		
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E							
Cyanide	ND	mg/L	0.0050	1		04/12/16 17:03	57-12-5	

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ANALYTICAL RESULTS

Project: BRIDGETON PERMEAT 013
Pace Project No.: 60216402

Sample: LPTP-P04,05,06-013 **Lab ID: 60216402003** Collected: 04/05/16 23:00 Received: 04/07/16 04:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Antimony	ND	ug/L	10.0	1	04/11/16 13:30	04/13/16 15:14	7440-36-0	
Arsenic	**257**	ug/L	10.0	1	04/11/16 13:30	04/13/16 15:14	7440-38-2	
Beryllium	ND	ug/L	1.0	1	04/11/16 13:30	04/13/16 15:14	7440-41-7	
Cadmium	ND	ug/L	5.0	1	04/11/16 13:30	04/13/16 15:14	7440-43-9	
Chromium	**25.7**	ug/L	5.0	1	04/11/16 13:30	04/13/16 15:14	7440-47-3	
Copper	ND	ug/L	10.0	1	04/11/16 13:30	04/13/16 15:14	7440-50-8	
Iron	**248**	ug/L	50.0	1	04/11/16 13:30	04/13/16 15:14	7439-89-6	
Lead	ND	ug/L	5.0	1	04/11/16 13:30	04/13/16 15:14	7439-92-1	
Magnesium	**39900**	ug/L	50.0	1	04/11/16 13:30	04/13/16 15:14	7439-95-4	
Nickel	**18.4**	ug/L	5.0	1	04/11/16 13:30	04/13/16 15:14	7440-02-0	
Selenium	ND	ug/L	15.0	1	04/11/16 13:30	04/13/16 15:14	7782-49-2	
Silver	ND	ug/L	7.0	1	04/11/16 13:30	04/13/16 15:14	7440-22-4	
Thallium	ND	ug/L	20.0	1	04/11/16 13:30	04/13/16 15:14	7440-28-0	
Zinc	**83.1**	ug/L	50.0	1	04/11/16 13:30	04/13/16 15:14	7440-66-6	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	ND	ug/L	0.20	1	04/15/16 15:35	04/18/16 10:53	7439-97-6	
2540D Total Suspended Solids	Analytical Method: SM 2540D							
Total Suspended Solids	**15.0**	mg/L	5.0	1		04/07/16 10:40		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**8.4**	Std. Units	0.10	1		04/13/16 11:23		H6
5210B BOD, 5 day	Analytical Method: SM 5210B Preparation Method: SM 5210B							
BOD, 5 day	**22.3**	mg/L	2.0	1	04/07/16 11:14	04/12/16 12:11		
350.1 Ammonia	Analytical Method: EPA 350.1							
Nitrogen, Ammonia	**261**	mg/L	10.0	100		04/08/16 14:38	7664-41-7	
410.4 COD	Analytical Method: EPA 410.4							
Chemical Oxygen Demand	**1610**	mg/L	150	15		04/20/16 15:46		

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QUALITY CONTROL DATA

Project: BRIDGETON PERMEAT 013
Pace Project No.: 60216402

QC Batch: MERP/10507
QC Batch Method: EPA 245.1
Analysis Method: EPA 245.1
Analysis Description: 245.1 Mercury
Associated Lab Samples: 60216402003

METHOD BLANK: 1741964 Matrix: Water
Associated Lab Samples: 60216402003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	ND	0.20	04/18/16 10:37	

LABORATORY CONTROL SAMPLE: 1741965

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	5.1	103	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1741966 1741967

Parameter	Units	60216679002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	ND	5	5	4.3	4.7	84	91	70-130	8	20	

MATRIX SPIKE SAMPLE: 1741968

Parameter	Units	60216751002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	ND	5	4.8	96	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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Sample Condition Upon Receipt

WO# : 60216402

60216402

Client Name: Republic Services

Courier: FedEx ☐ UPS ☐ VIA ☐ Clay ☐ PEX ☐ ECI ☐ Pace ☐ Other ☒ Xroad Client ☐

Tracking #: _____ Pace Shipping Label Used? Yes ☐ No ☑

Custody Seal on Cooler/Box Present: Yes ☑ No ☐ Seals intact: Yes ☑ No ☐

Packing Material: Bubble Wrap ☐ Bubble Bags ☑ Foam ☑ None ☐ Other ☐

Thermometer Used: CF +1.0 T-239 / CF 0.0 T-262 Type of Ice: (Wet) Blue None ☐ Samples received on ice, cooling process has begun. (circle one)

Cooler Temperature: 3.3

Temperature should be above freezing to 6°C

AF-B

Optional
Proj Due Date:
Proj Name:

Date and Initials of person examining contents: DV 4/7/16

Chain of Custody present:	☑Yes	☐No	☐N/A	1.
Chain of Custody filled out:	☑Yes	☐No	☐N/A	2.
Chain of Custody relinquished:	☑Yes	☐No	☐N/A	3.
Sampler name & signature on COC:	☑Yes	☐No	☐N/A	4.
Samples arrived within holding time:	☑Yes	☐No	☐N/A	5.
Short Hold Time analyses (<72hr):	☑Yes	☐No	☐N/A	6. BOD
Rush Turn Around Time requested:	☐Yes	☑No	☐N/A	7.
Sufficient volume:	☑Yes	☐No	☐N/A	8.
Correct containers used:	☑Yes	☐No	☐N/A	
Pace containers used:	☑Yes	☐No	☐N/A	9.
Containers intact:	☑Yes	☐No	☐N/A	10.
Unpreserved 5035A soils frozen w/in 48hrs?	☐Yes	☐No	☑N/A	11.
Filtered volume received for dissolved tests?	☐Yes	☐No	☑N/A	12.
Sample labels match COC:	☑Yes	☐No	☐N/A	
Includes date/time/ID/analyses Matrix: WT				13.
All containers needing preservation have been checked.	☑Yes	☐No	☐N/A	AG3U 6.0 BP3C 10.5 BP3S 6.0 Added 25 mL of HNO3 to LPTP-P02 BPW
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes	☑No	☐N/A	14. pH 6.0/2.0
Exceptions: VOA, Coliform, O&G, WI-DRO (water)	☑Yes	☐No		Initial when completed: DV Lot # of added preservative: HCl 12089-23-7 4/7/16
Trip Blank present:	☑Yes	☐No	☐N/A	
Pace Trip Blank lot # (if purchased): 121015-7				15.
Headspace in VOA vials (>6mm):	☐Yes	☑No	☐N/A	16.
Project sampled in USDA Regulated Area:	☐Yes	☐No	☑N/A	17. List State:
Additional labels attached to 5035A vials in the field?	☐Yes	☐No	☑N/A	18.

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: 4/7/16

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MSD 033596

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Republic Services	Report To:	Derek Bouchard	Attention:	AMY HARGROVE
Address:	13570 St. Charles Rock Rd	Copy To:	Kevin Kamp (kkamp@cecinc.com)	Company Name:	REPUBLIC SERVICES
	Bridgeton, MO 63044		Natalie Lafata/CEC, Barr validation group	Address:	BRIDGETON, MO 63044
Email To:	dbouchard@republicservices.com	Purchase Order No.:		Pace Quote Reference:	
Phone: 314-302-3634	Fax:	Project Name:	BRIDGETON PERMEATE 013	Pace Project Manager:	Angie Brown 913-563-1402
Requested Due Date/TAT:		Project Number:		Pace Profile #:	7979

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER

☐ UST ☐ RCRA ☑ OTHER

Site Location STATE: MO

Section D Required Client Information

Valid Matrix Codes: MATRIX / CODE — DRINKING WATER DW, WATER WT, WASTE WATER WW, PRODUCT P, SOIL/SOLID SL, OIL OL, WIPE WP, AIR AR, OTHER OT, TISSUE TS

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	AMMONIA, COD	BOD, TSS, pH	Oil/Grease	Total Phenol	Fe, Mg EPA 200.7	200.7/245 TTO(*)	624 TTO	625 TTO		Cyanide TTO	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D. 6021 6402
1	LPTP-00 TRIP BLANK	WT	G			4/5/16	1205		2	2									2D6 9/4						X					(*) TTO metals: Sb, As, Be, Cd 001
2	LPTP-P02,03,07,08,09-013 5D/94	WT	G			4/5/16	1205		12	8	1		2	1	1AG35				1B	P3C	X	X	3AG1U		X	X		X	24G/U	Cr,Cu,Pb,Hg,Ni,Se,Ag,Tl,Zn 002
3	LPTP-P04,05,06-013	WT	C	4/5/16	1205	4/6/16	2300		3	1	1	1							X	X			X	X						1B/B3S 1BP3N 1BPM 003
4																														
5																														
6																														SAMPLING POINT REF 013
7																														
8																														
9																														
10																														
11																														
12																														

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PO#5558082	[signature]	4/6/16	1200	[signature]	4/6	1200				
				[signature]	4/7/16	0435	3.7	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: N. Lafata / R Jones / D. Boedeker

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 4/6/16

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.08, 12-Oct-2007

Chain of Custody Record

№ _____

Eberline Services
601 Scarboro Road
Oak Ridge, TN 37830
(865) 481-0683 Phone • (865) 483-4621 Fax

EBERLINE SERVICES

Project Name: Bridgeton 2016 Leachate	Project Number:
Send Report To: Jon Wilkinson / FEI	Sampler (Print Name): Jon Wilkinson
Address: jwilkinson@feezorengineering.com	Sampler (Print Name): Matt Stewart / Mike Spurgeon
	Shipment Method: FedEx
	Airbill Number:
Phone:	Laboratory Receiving:
Fax:	

Page 1 of 1

16-05064
REC'D MAY 12 2016

Purchase Order #: _____

Field Sample ID	Sample Date	Sample Time	Sample Matrix	Number of Containers	Gross Alpha	Gross Beta	Gross Gamma (incl. Bi-212 & U-235)	Radium-226	Radium-228	Total Uranium by KPA	Uranium-234, -235, & -238	Total Dissolved Solids	Total Suspended Solids			Comments, Special Instructions, etc.	Lab Sample ID (to be completed by lab)
013 4	5/10-11/16	1135, 1555 0750, 1120	Aq	4	X	X	X	X	X	X	X	X	X				

Analysis Requested

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:	Sample Custodian Remarks (Completed By Laboratory):		
	FedEx #	5/11/2016	1100			
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:	QA/QC Level	Turnaround	Sample Receipt
	James E Bailey	5/12/16		Level I ☐	Routine ☒	Total # Containers Received?
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:	Level II ☐	24 Hour ☐	COC Seals Present?
				Level III ☐	1 Week ☐	COC Seals Intact?
				Other ☐	Other _____	Received Containers Intact?
						Temperature?

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MSD 033595

MSD 033598

EBERLINE SERVICES
Oak Ridge Laboratory

Internal Chain of Custody

Work Order #	16-05064
Lab Deadline	6/2/2016
Analysis	UUISO - Level 4
Sample Matrix	Water

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
	04	40	R1.1

	Location (circle one)					Initials	Date
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	JWO	5/25/16 0800
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	JWO	5/27/16 0800
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	DM	5-27-16 0810
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	DM	6/1/16 0725
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		6/1/16 07xx
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	KB	6/1/16 1031
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		

EBERLINE SERVICES

EBERLINE ANALYTICAL CORPORATION
601 SCARBORO ROAD
OAK RIDGE, TENNESSEE 37830
PHONE (865) 481-0683
FAX (865) 483-4621

EBS-OR-40931

June 29, 2016

Jonathan Wilkinson
Feezor Engineering, Inc.
3405 Hollenberg Drive
Bridgeton, MO 63044

CASE NARRATIVE - REVISED
Work Order # 16-05064-OR

SAMPLE RECEIPT

This work order contains one water sample received 05/12/2016. This sample was analyzed for Isotopic Uranium, Total Uranium by KPA, Radium-226/228, Gross Alpha/Beta, by Gamma Spectroscopy, Total Dissolved Solids and Total Suspended Solids.

CLIENT ID	LAB ID
013	16-05064-04

ANALYTICAL METHODS

Isotopic Uranium was analyzed using Method EML U-02 Modified. Total Uranium was analyzed using Method ASTM D5174 Modified. Radium-226 was analyzed using EPA Method 903.0 Modified. Radium-228 was analyzed using EPA Method 904.0. Gross Alpha/Beta was performed using EPA Method 900.0 Modified. Gamma Spectroscopy was performed using EPA Method 901.1 Modified. Total Dissolved Solids were performed using Standard Methods 2540C. Total Suspended Solids were performed using Standard Methods 2540D.

ANALYTICAL RESULTS

Combined Standard Uncertainty is reported at 2-sigma value.

Minimum Detectable Activity (MDA) values for data represented in this report are sample-specific. MDA measurements are determined based on factors and conditions including instrument settings, aliquot size and matrix type.

ISOTOPIC URANIUM

Sample was prepared by removing a representative aliquot followed by mixed acid digestions as appropriate. Uranium was selectively extracted by ion exchange. Uranium was eluted, micro-precipitated and mounted on micro-porous filter media. Sample activities were then determined by alpha spectroscopy using energy specific regions of interest for Uranium-234, Uranium-235 and Uranium-238. Chemical recovery was determined by the use of a Uranium-232 tracer. Activity of the Uranium-232 tracer was determined by alpha spectroscopy using an energy specific region of interest.

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ANALYTICAL RESULTS CONTINUED

ISOTOPIC URANIUM CONTINUED

Sample demonstrated acceptable results for all Uranium analyses. Chemical recovery was acceptable for all samples. The Uranium-234, Uranium-235 and Uranium-238 method blank demonstrated acceptable results. Results for the Uranium-234 duplicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Uranium-235 and Uranium-238 duplicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Uranium-234 and Uranium-238 laboratory control sample demonstrated an acceptable percent recovery.

TOTAL URANIUM

A volumetric aliquot of each sample was removed and placed into a 20 ml glass vial. Sample was digested and oxidized several times. The digested sample was diluted to a known volume and an aliquot was removed from this dilution. This aliquot was complexed with Chem-Check, Ura-Plex and subsequently analyzed using a kinetic phosphorescent analyzer.

Sample demonstrated acceptable results for all Total Uranium analyses. Chemical recovery was acceptable for all samples. The Total Uranium method blank demonstrated an acceptable result. Results for the Total Uranium duplicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Total Uranium low and high calibration range laboratory control sample demonstrated an acceptable percent recovery.

RADIUM-226

Sample was prepared by removing a representative aliquot followed by mixed acid digestions as appropriate. This was followed by precipitations of Radium/Barium Sulfate. Precipitates were dissolved in alkaline EDTA. Radium was selectively precipitated and then mounted on micro-porous filter media. Sample was counted by alpha spectroscopy using an energy specific region of interest for Radium-226. Inherent self-absorption from elemental Barium was corrected for in the final result. Chemical recovery was calculated by the use of a Barium-133 tracer, which was determined by HPGe gamma spectroscopy.

Sample demonstrated acceptable results for all Radium-226 analyses. Chemical recovery was acceptable for all samples. The Radium-226 method blank demonstrated an acceptable result. Results for the Radium-226 duplicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Radium-226 laboratory control sample demonstrated an acceptable percent recovery.

RADIUM-228

Following alpha spectroscopy analysis of Radium-226, Barium/Radium Sulfate precipitates were redissolved and allowed for sufficient ingrowth of the Actinium-228 daughter. After ingrowth, Actinium-228 was selectively precipitated. Precipitates were filtered and beta emissions for Actinium-228 were then counted on a gas proportional counter. Chemical recovery was determined by the use of a Barium-133 tracer, the activity of which was determined by HPGe gamma spectroscopy and an elemental Yttrium carrier by gravimetric measurements. The product of these two recoveries was used to calculate chemical yield.

ANALYTICAL RESULTS CONTINUED

RADIUM-228 CONTINUED

Sample demonstrated acceptable results for all Radium-228 analyses. Chemical recovery was acceptable for all samples. The Radium-228 method blank demonstrated an acceptable result. Results for the Radium-228 duplicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Radium-228 laboratory control sample demonstrated an acceptable percent recovery.

GROSS ALPHA & BETA

Sample was prepared by evaporation of a representative volumetric aliquot acidified with HNO_3. Reduced sample was then transferred to steel planchets for final evaporation to dryness and flaming. Sample was then counted on a gas proportional counter. Results were corrected as required for inherent self-absorption based on residual mass present.

Sample demonstrated acceptable results for all Gross Alpha and Beta analyses. Due to a high total solids content, sample results demonstrated slightly high method detection limits. The Gross Alpha and Beta method blank demonstrated acceptable results. Results for the Gross Alpha and Beta duplicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Gross Alpha and Beta laboratory control sample demonstrated an acceptable percent recovery.

GAMMA SPECTROSCOPY

Sample for Gamma Spectroscopy analysis was prepared by transferring a known mass/aliquot of the prepared and homogenized sample to a standard geometry container. Sample was counted on a High Purity Germanium (HPGe) gamma ray detector.

Sample demonstrated acceptable results for all gamma-emitting radionuclides as reported. Results for "Gross Gamma" were derived from Potassium-40 since this is the only true positive gamma emitting radionuclide. In this case, there are no real positive gamma emitting radionuclides in these samples and most results are reported from the Canberra "non-identified" radionuclides report. The method blank demonstrated acceptable results for all radionuclides as reported. All results for the method blank were reported from the Canberra Apex Gamma "Nuclide MDA Report" and are not positive. Results for the Actinium-228 and Bismuth-214 replicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Potassium-40 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Cobalt-60 and Cesium-137 laboratory control sample demonstrated an acceptable percent recovery.

TOTAL DISSOLVED SOLIDS (TDS)

A volumetric aliquot of the sample was filtered through a tared 0.45µm filter media into a tared 250ml beaker. Sample was then dried on a hot plate and was allowed to cool. The TDS content was determined by reweighing tared beaker.

Sample demonstrated a Total Dissolved Solids content of 3,239.0 mg/L.

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ANALYTICAL RESULTS CONTINUED

TOTAL SUSPENDED SOLIDS (TSS)

A volumetric aliquot of the sample was filtered through tared 0.45µm filter media. Filter media was then dried and reweighed for determination of TSS content.

Sample demonstrated a Total Suspended Solids content of 104.0 mg/L.

CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.

M.R. McDougall
Laboratory Manager

Date: 6/29/2016

Eberline Analytical wants and encourages your feedback regarding our performance providing radioanalytical services. Please visit http://www.eberlineservices.com/client.htm to provide us with feedback on our services.

: 00022

SECTION IV

ANALYTICAL RESULTS SUMMARY

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Eberline Analytical
Final Report of Analysis

Report To:
Jonathan E. Wilkinson, P.E.
Feezor Engineering, Inc.
3377 Hollenberg Drive
Bridgeton, MO 63044

Work Order Details:

SDG:	16-05064
Purchase Order:	PO5642481
Analysis Category:	ENVIRONMENTAL
Sample Matrix:	WA

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
16-05064-01	LCS	KNOWN	05/12/16 00:00	5/12/2016	5/13/2016	16-05064	Cobalt-60	EPA 901.1 Modified	1.98E+05	7.94E+03			pCi/l
16-05064-01	LCS	KNOWN	05/12/16 00:00	5/12/2016	5/13/2016	16-05064	Cesium-137	EPA 901.1 Modified	1.26E+05	5.04E+03			pCi/l
16-05064-01	LCS	SPIKE	05/12/16 00:00	5/12/2016	5/13/2016	16-05064	Cobalt-60	EPA 901.1 Modified	2.19E+05	1.37E+04	1.78E+04	1.12E+03	pCi/l
16-05064-01	LCS	SPIKE	05/12/16 00:00	5/12/2016	5/13/2016	16-05064	Cesium-137	EPA 901.1 Modified	1.39E+05	1.23E+04	1.42E+04	1.18E+03	pCi/l
16-05064-02	MBL	BLANK	05/12/16 00:00	5/12/2016	5/13/2016	16-05064	Actinium-228	EPA 901.1 Modified	-5.30E-02	1.59E+01	1.59E+01	2.46E+01	pCi/l
16-05064-02	MBL	BLANK	05/12/16 00:00	5/12/2016	5/13/2016	16-05064	Bismuth-212	EPA 901.1 Modified	5.30E-01	3.38E+01	3.38E+01	5.10E+01	pCi/l
16-05064-02	MBL	BLANK	05/12/16 00:00	5/12/2016	5/13/2016	16-05064	Bismuth-214	EPA 901.1 Modified	2.40E+01	2.51E+01	2.51E+01	4.19E+01	pCi/l
16-05064-02	MBL	BLANK	05/12/16 00:00	5/12/2016	5/13/2016	16-05064	Gross Gamma	EPA 901.1 Modified	4.95E+01	4.95E+01	4.95E+01	8.07E+01	pCi/l
16-05064-02	MBL	BLANK	05/12/16 00:00	5/12/2016	5/13/2016	16-05064	Potassium-40	EPA 901.1 Modified	4.95E+01	4.95E+01	4.95E+01	8.07E+01	pCi/l
16-05064-02	MBL	BLANK	05/12/16 00:00	5/12/2016	5/13/2016	16-05064	Lead-212	EPA 901.1 Modified	9.85E+00	6.17E+00	6.19E+00	1.00E+01	pCi/l
16-05064-02	MBL	BLANK	05/12/16 00:00	5/12/2016	5/13/2016	16-05064	Lead-214	EPA 901.1 Modified	2.41E+00	8.09E+00	8.09E+00	1.24E+01	pCi/l
16-05064-02	MBL	BLANK	05/12/16 00:00	5/12/2016	5/13/2016	16-05064	Radium-226	EPA 901.1 Modified	2.40E+01	2.51E+01	2.51E+01	4.19E+01	pCi/l
16-05064-02	MBL	BLANK	05/12/16 00:00	5/12/2016	5/13/2016	16-05064	Radium-228	EPA 901.1 Modified	-5.30E-02	1.59E+01	1.59E+01	2.46E+01	pCi/l
16-05064-02	MBL	BLANK	05/12/16 00:00	5/12/2016	5/13/2016	16-05064	Thorium-234	EPA 901.1 Modified	1.24E+02	6.91E+01	6.94E+01	9.82E+01	pCi/l
16-05064-02	MBL	BLANK	05/12/16 00:00	5/12/2016	5/13/2016	16-05064	Thallium-208	EPA 901.1 Modified	-3.74E-01	1.25E+01	1.25E+01	1.88E+01	pCi/l
16-05064-02	MBL	BLANK	05/12/16 00:00	5/12/2016	5/13/2016	16-05064	Uranium-235	EPA 901.1 Modified	-6.39E+00	1.62E+01	1.62E+01	2.56E+01	pCi/l
16-05064-03	DUP	013	05/11/16 11:20	5/12/2016	5/13/2016	16-05064	Actinium-228	EPA 901.1 Modified	3.25E+00	1.35E+01	1.35E+01	2.13E+01	pCi/l
16-05064-03	DUP	013	05/11/16 11:20	5/12/2016	5/13/2016	16-05064	Bismuth-212	EPA 901.1 Modified	1.81E+01	2.56E+01	2.56E+01	4.25E+01	pCi/l
16-05064-03	DUP	013	05/11/16 11:20	5/12/2016	5/13/2016	16-05064	Bismuth-214	EPA 901.1 Modified	1.12E+01	7.25E+00	7.27E+00	1.24E+01	pCi/l
16-05064-03	DUP	013	05/11/16 11:20	5/12/2016	5/13/2016	16-05064	Gross Gamma	EPA 901.1 Modified	2.14E+02	5.43E+01	5.54E+01	1.13E+02	pCi/l
16-05064-03	DUP	013	05/11/16 11:20	5/12/2016	5/13/2016	16-05064	Potassium-40	EPA 901.1 Modified	2.14E+02	5.43E+01	5.54E+01	1.13E+02	pCi/l
16-05064-03	DUP	013	05/11/16 11:20	5/12/2016	5/13/2016	16-05064	Lead-212	EPA 901.1 Modified	9.53E+00	7.12E+00	7.14E+00	1.16E+01	pCi/l
16-05064-03	DUP	013	05/11/16 11:20	5/12/2016	5/13/2016	16-05064	Lead-214	EPA 901.1 Modified	9.89E+00	9.97E+00	9.99E+00	1.65E+01	pCi/l
16-05064-03	DUP	013	05/11/16 11:20	5/12/2016	5/13/2016	16-05064	Radium-226	EPA 901.1 Modified	1.12E+01	7.25E+00	7.27E+00	1.24E+01	pCi/l
16-05064-03	DUP	013	05/11/16 11:20	5/12/2016	5/13/2016	16-05064	Radium-228	EPA 901.1 Modified	3.25E+00	1.35E+01	1.35E+01	2.13E+01	pCi/l
16-05064-03	DUP	013	05/11/16 11:20	5/12/2016	5/13/2016	16-05064	Thorium-234	EPA 901.1 Modified	7.98E+01	4.53E+01	4.55E+01	7.48E+01	pCi/l
16-05064-03	DUP	013	05/11/16 11:20	5/12/2016	5/13/2016	16-05064	Thallium-208	EPA 901.1 Modified	7.55E+00	1.06E+01	1.06E+01	1.71E+01	pCi/l
16-05064-03	DUP	013	05/11/16 11:20	5/12/2016	5/13/2016	16-05064	Uranium-235	EPA 901.1 Modified	8.18E+00	2.22E+01	2.22E+01	2.91E+01	pCi/l

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

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EBERLINE ANALYTICAL CORPORATION
601 SCARBORO ROAD OAK RIDGE, TN 37830 865/481-0683 FAX 865/483-4621

Eberline Analytical
Final Report of Analysis

Report To:
Jonathan E. Wilkinson, P.E.
Feezor Engineering, Inc.
3377 Hollenberg Drive
Bridgeton, MO 63044

Work Order Details:
SDG: 16-05064
Purchase Order: PO5642481
Analysis Category: ENVIRONMENTAL
Sample Matrix: WA

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
16-05064-04	DO	013	05/11/16 11:20	5/12/2016	5/13/2016	16-05064	Actinium-228	EPA 901.1 Modified	1.53E+01	1.32E+01	1.32E+01	2.29E+01	pCi/l
16-05064-04	DO	013	05/11/16 11:20	5/12/2016	5/13/2016	16-05064	Bismuth-212	EPA 901.1 Modified	-2.86E+00	2.96E+01	2.96E+01	4.25E+01	pCi/l
16-05064-04	DO	013	05/11/16 11:20	5/12/2016	5/13/2016	16-05064	Bismuth-214	EPA 901.1 Modified	6.67E+00	7.48E+00	7.48E+00	1.22E+01	pCi/l
16-05064-04	DO	013	05/11/16 11:20	5/12/2016	5/13/2016	16-05064	Gross Gamma	EPA 901.1 Modified	2.02E+02	6.17E+01	6.26E+01	9.38E+01	pCi/l
16-05064-04	DO	013	05/11/16 11:20	5/12/2016	5/13/2016	16-05064	Potassium-40	EPA 901.1 Modified	2.02E+02	6.17E+01	6.26E+01	9.38E+01	pCi/l
16-05064-04	DO	013	05/11/16 11:20	5/12/2016	5/13/2016	16-05064	Lead-212	EPA 901.1 Modified	9.25E+00	7.71E+00	7.73E+00	1.27E+01	pCi/l
16-05064-04	DO	013	05/11/16 11:20	5/12/2016	5/13/2016	16-05064	Lead-214	EPA 901.1 Modified	-4.29E+00	7.69E+00	7.69E+00	9.49E+00	pCi/l
16-05064-04	DO	013	05/11/16 11:20	5/12/2016	5/13/2016	16-05064	Radium-226	EPA 901.1 Modified	6.67E+00	7.48E+00	7.48E+00	1.22E+01	pCi/l
16-05064-04	DO	013	05/11/16 11:20	5/12/2016	5/13/2016	16-05064	Radium-228	EPA 901.1 Modified	1.53E+01	1.32E+01	1.32E+01	2.29E+01	pCi/l
16-05064-04	DO	013	05/11/16 11:20	5/12/2016	5/13/2016	16-05064	Thorium-234	EPA 901.1 Modified	2.13E+01	4.55E+01	4.56E+01	6.95E+01	pCi/l
16-05064-04	DO	013	05/11/16 11:20	5/12/2016	5/13/2016	16-05064	Thallium-208	EPA 901.1 Modified	1.15E+01	1.05E+01	1.05E+01	1.73E+01	pCi/l
16-05064-04	DO	013	05/11/16 11:20	5/12/2016	5/13/2016	16-05064	Uranium-235	EPA 901.1 Modified	1.02E+01	1.98E+01	1.98E+01	2.66E+01	pCi/l
16-05064-01	LCS	KNOWN	05/12/16 00:00	5/12/2016	5/19/2016	16-05064	Gross Alpha	EPA 900.0 Modified	2.71E+02	1.17E+01			pCi/l
16-05064-01	LCS	SPIKE	05/12/16 00:00	5/12/2016	5/19/2016	16-05064	Gross Alpha	EPA 900.0 Modified	2.69E+02	3.59E+00	2.96E+01	3.04E-01	pCi/l
16-05064-02	MBL	BLANK	05/12/16 00:00	5/12/2016	5/19/2016	16-05064	Gross Alpha	EPA 900.0 Modified	1.29E-02	1.54E-01	1.54E-01	3.50E-01	pCi/l
16-05064-03	DUP	013	05/11/16 11:20	5/12/2016	5/19/2016	16-05064	Gross Alpha	EPA 900.0 Modified	9.80E+00	1.32E+01	1.32E+01	2.68E+01	pCi/l
16-05064-04	DO	013	05/11/16 11:20	5/12/2016	5/19/2016	16-05064	Gross Alpha	EPA 900.0 Modified	-9.44E+00	1.61E+01	1.61E+01	4.01E+01	pCi/l
16-05064-01	LCS	KNOWN	05/12/16 00:00	5/12/2016	5/19/2016	16-05064	Gross Beta	EPA 900.0 Modified	2.92E+02	8.75E+00			pCi/l
16-05064-01	LCS	SPIKE	05/12/16 00:00	5/12/2016	5/19/2016	16-05064	Gross Beta	EPA 900.0 Modified	2.30E+02	2.78E+00	3.20E+01	5.00E-01	pCi/l
16-05064-02	MBL	BLANK	05/12/16 00:00	5/12/2016	5/19/2016	16-05064	Gross Beta	EPA 900.0 Modified	4.52E-01	2.56E-01	2.63E-01	4.93E-01	pCi/l
16-05064-03	DUP	013	05/11/16 11:20	5/12/2016	5/19/2016	16-05064	Gross Beta	EPA 900.0 Modified	1.88E+02	2.05E+01	3.31E+01	2.72E+01	pCi/l
16-05064-04	DO	013	05/11/16 11:20	5/12/2016	5/19/2016	16-05064	Gross Beta	EPA 900.0 Modified	1.30E+02	1.76E+01	2.52E+01	2.64E+01	pCi/l
16-05064-01	LCS	KNOWN	05/12/16 00:00	5/12/2016	6/1/2016	16-05064	Radium-226	EPA 903.0 Modified	1.02E+01	4.67E-01			pCi/l
16-05064-01	LCS	SPIKE	05/12/16 00:00	5/12/2016	6/1/2016	16-05064	Radium-226	EPA 903.0 Modified	1.03E+01	1.49E+00	2.63E+00	3.60E-01	pCi/l
16-05064-02	MBL	BLANK	05/12/16 00:00	5/12/2016	6/1/2016	16-05064	Radium-226	EPA 903.0 Modified	4.72E-02	1.70E-01	1.70E-01	3.84E-01	pCi/l
16-05064-03	DUP	013	05/11/16 11:20	5/12/2016	6/1/2016	16-05064	Radium-226	EPA 903.0 Modified	-8.71E-02	3.03E-01	3.03E-01	8.57E-01	pCi/l
16-05064-04	DO	013	05/11/16 11:20	5/12/2016	6/1/2016	16-05064	Radium-226	EPA 903.0 Modified	4.31E-01	4.74E-01	4.82E-01	6.86E-01	pCi/l

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

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Eberline Analytical
Final Report of Analysis

Report To:
Jonathan E. Wilkinson, P.E.
Feezor Engineering, Inc.
3377 Hollenberg Drive
Bridgeton, MO 63044

Work Order Details:
SDG: 16-05064
Purchase Order: PO5642481
Analysis Category: ENVIRONMENTAL
Sample Matrix: WA

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
16-05064-01	LCS	KNOWN	05/12/16 00:00	5/12/2016	6/3/2016	16-05064	Radium-228	EPA 904.0	9.05E+00	4.62E-01			pCi/l
16-05064-01	LCS	SPIKE	05/12/16 00:00	5/12/2016	6/3/2016	16-05064	Radium-228	EPA 904.0	8.77E+00	7.22E-01	2.11E+00	7.77E-01	pCi/l
16-05064-02	MBL	BLANK	05/12/16 00:00	5/12/2016	6/3/2016	16-05064	Radium-228	EPA 904.0	-5.83E-01	4.27E-01	4.47E-01	9.74E-01	pCi/l
16-05064-03	DUP	013	05/11/16 11:20	5/12/2016	6/3/2016	16-05064	Radium-228	EPA 904.0	2.32E+00	9.64E-01	1.10E+00	1.83E+00	pCi/l
16-05064-04	DO	013	05/11/16 11:20	5/12/2016	6/3/2016	16-05064	Radium-228	EPA 904.0	8.41E-01	8.16E-01	8.38E-01	1.65E+00	pCi/l
16-05064-01	LCS	KNOWN	05/12/16 00:00	5/12/2016	5/17/2016	16-05064	Total Uranium	ASTM D5174 Modified	8.00E+00	1.60E-01			ug/l
16-05064-0H	LCSH	KNOWN-H	05/12/16 00:00	5/12/2016	5/17/2016	16-05064	Total Uranium	ASTM D5174 Modified	2.00E+02	4.00E+00			ug/l
16-05064-01	LCS	SPIKE	05/12/16 00:00	5/12/2016	5/17/2016	16-05064	Total Uranium	ASTM D5174 Modified	8.25E+00	2.10E-01	9.36E-01	1.06E+00	ug/l
16-05064-0H	LCSH	SPIKE-H	05/12/16 00:00	5/12/2016	5/17/2016	16-05064	Total Uranium	ASTM D5174 Modified	2.19E+02	1.19E+01	2.70E+01	1.06E+00	ug/l
16-05064-02	MBL	BLANK	05/12/16 00:00	5/12/2016	5/17/2016	16-05064	Total Uranium	ASTM D5174 Modified	0.00E+00	0.00E+00	0.00E+00	1.06E+00	ug/l
16-05064-03	DUP	013	05/11/16 11:20	5/12/2016	5/17/2016	16-05064	Total Uranium	ASTM D5174 Modified	9.97E-01	4.64E-02	1.20E-01	1.06E+00	ug/l
16-05064-04	DO	013	05/11/16 11:20	5/12/2016	5/17/2016	16-05064	Total Uranium	ASTM D5174 Modified	8.05E-01	4.17E-02	9.83E-02	1.06E+00	ug/l
16-05064-01	LCS	KNOWN	05/12/16 00:00	5/12/2016	6/1/2016	16-05064	Uranium-234	EML U-02 Modified	7.34E+00	2.64E-01			pCi/l
16-05064-01	LCS	SPIKE	05/12/16 00:00	5/12/2016	6/1/2016	16-05064	Uranium-234	EML U-02 Modified	6.03E+00	7.93E-01	9.03E-01	8.03E-02	pCi/l
16-05064-02	MBL	BLANK	05/12/16 00:00	5/12/2016	6/1/2016	16-05064	Uranium-234	EML U-02 Modified	1.14E-01	7.30E-02	7.35E-02	6.23E-02	pCi/l
16-05064-03	DUP	013	05/11/16 11:20	5/12/2016	6/1/2016	16-05064	Uranium-234	EML U-02 Modified	6.61E-01	3.54E-01	3.57E-01	2.39E-01	pCi/l
16-05064-04	DO	013	05/11/16 11:20	5/12/2016	6/1/2016	16-05064	Uranium-234	EML U-02 Modified	5.54E-01	3.38E-01	3.40E-01	3.46E-01	pCi/l
16-05064-01	LCS	SPIKE	05/12/16 00:00	5/12/2016	6/1/2016	16-05064	Uranium-235	EML U-02 Modified	2.25E-01	1.12E-01	1.13E-01	6.45E-02	pCi/l
16-05064-02	MBL	BLANK	05/12/16 00:00	5/12/2016	6/1/2016	16-05064	Uranium-235	EML U-02 Modified	-9.26E-03	2.82E-02	2.82E-02	7.68E-02	pCi/l
16-05064-03	DUP	013	05/11/16 11:20	5/12/2016	6/1/2016	16-05064	Uranium-235	EML U-02 Modified	1.31E-01	1.95E-01	1.95E-01	3.18E-01	pCi/l
16-05064-04	DO	013	05/11/16 11:20	5/12/2016	6/1/2016	16-05064	Uranium-235	EML U-02 Modified	-2.14E-03	1.60E-01	1.60E-01	4.16E-01	pCi/l
16-05064-01	LCS	KNOWN	05/12/16 00:00	5/12/2016	6/1/2016	16-05064	Uranium-238	EML U-02 Modified	7.11E+00	2.56E-01			pCi/l
16-05064-01	LCS	SPIKE	05/12/16 00:00	5/12/2016	6/1/2016	16-05064	Uranium-238	EML U-02 Modified	5.81E+00	7.69E-01	8.74E-01	5.20E-02	pCi/l
16-05064-02	MBL	BLANK	05/12/16 00:00	5/12/2016	6/1/2016	16-05064	Uranium-238	EML U-02 Modified	5.16E-03	3.24E-02	3.24E-02	7.81E-02	pCi/l
16-05064-03	DUP	013	05/11/16 11:20	5/12/2016	6/1/2016	16-05064	Uranium-238	EML U-02 Modified	7.45E-02	1.60E-01	1.60E-01	3.12E-01	pCi/l
16-05064-04	DO	013	05/11/16 11:20	5/12/2016	6/1/2016	16-05064	Uranium-238	EML U-02 Modified	1.93E-01	2.12E-01	2.13E-01	3.07E-01	pCi/l
16-05064-04	TRG	013	05/11/16 11:20	5/12/2016	5/13/2016	16-05064	TDS	SM2540C	3.24E+03				mg/l
16-05064-04	TRG	013	05/11/16 11:20	5/12/2016	5/13/2016	16-05064	TSS	SM2540D	1.04E+02				mg/l

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

EBERLINE SERVICES

EBERLINE ANALYTICAL CORPORATION
601 SCARBORO ROAD OAK RIDGE, TN 37830 865/481-0683 FAX 865/483-4621

Engineering for a Better World
FEEZOR
ENGINEERING, INC.

Calculation of Discharged Activity
Bridgeton Landfill, LLC - Discharge Permit No. 1003803000 - 1

In accordance with Special Condition II.C.3 of the Bridgeton Landfill, LLC Hauled and Industrial Wastewater Discharge Permit (Permit No. 1003803000 - 1), each of the facility's quarterly self-monitoring reports shall specify the activity by radionuclide that is discharged to the Metropolitan St. Louis Sewer District (MSD) system during the reporting period. The methodology that was utilized to calculate the activity discharged from the Bridgeton Landfill during the Second Quarter 2016 monitoring period is described below.

The discharged activity for each radionuclide is determined by multiplying the activity concentration for the reporting period by the total volume that was discharged during the reporting period:

Discharged Activity = Activity Concentration × Discharged Volume

As presented in laboratory analytical report 16-05064-OR provided in **Attachment 3**, Eberline Services (Eberline) reported the following radionuclide activity concentrations from the composite samples collected on May 10th – 11th, 2016 from leachate sampling point 013:

Constituent	Result	Units
Gross Alpha	< MDA	pCi/L
Gross Beta	130 ± 25	pCi/L
Gross Gamma	202 ± 63	pCi/L
Radium - 226	< MDA	pCi/L
Radium - 228	< MDA	pCi/L
Uranium - 234	0.55 ± 0.46	pCi/L
Uranium - 235	< MDA	pCi/L
Uranium - 238	< MDA	pCi/L

Notes:
1 pCi = 1×10^{-12} Ci
MDA = Minimum Detectable Activity

Note that the gross gamma activity concentration presented above has been qualified by Eberline. As stated in the laboratory analytical report case narrative for Eberline analytical report 16-05064-OR (**Attachment 3**):

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Sample demonstrated acceptable results for all gamma-emitting radionuclides as reported. Results for "Gross Gamma" were derived from Potassium-40 since this is the only true positive gamma emitting radionuclide. In this case, there are no real positive gamma emitting radionuclides in these samples and most results are reported from the Canberra "non-identified" radionuclides report. The method blank demonstrated acceptable results for all radionuclides as reported.

As presented in **Attachment 5**, the following monthly volumes were discharged through leachate sampling point 013 during the second quarter of 2016:

Month	Volume Discharged (gal)
April 2016	6,480,977
May 2016	7,053,442
June 2016	6,813,918

The total volume discharged during the second quarter of 2016 is therefore:

$$6{,}480{,}977 \text{ gal} + 7{,}053{,}442 \text{ gal} + 6{,}813{,}918 \text{ gal} = 20{,}348{,}337 \text{ gal}$$

Given that activity concentration results are presented in pCi/L, the total volume discharged is converted from gallons to liters prior to the calculation of discharged activity:

$$20{,}348{,}337 \text{ gal} \times \frac{3.785 \text{ L}}{\text{gal}} = 77{,}018{,}456 \text{ L}$$

For radionuclides with reported activity concentrations greater than the MDA, the discharge activity can then be calculated as the product of the activity concentration and total volume discharged:

For Gross Beta:

$$130 \text{ pCi/L} \times 77{,}018{,}456 \text{ L} = 1.00 \times 10^{10} \text{ pCi}$$

For Gross Gamma:

$$202 \text{ pCi/L} \times 77{,}018{,}456 \text{ L} = 1.56 \times 10^{10} \text{ pCi}$$

For Uranium-234:

$$0.55 \text{ pCi/L} \times 77{,}018{,}456 \text{ L} = 4.24 \times 10^{7} \text{ pCi}$$

(No calculation is performed for those radionuclides with reported activity concentrations less than the MDA: Gross Alpha, Radium-226, Radium-228, Uranium-235, and Uranium-238.)

The individual discharge activities for Gross Beta, Gross Gamma, and Uranium-234 are summed to determine the total discharged activity for the second quarter of 2016:

$$(1.00 \times 10^{10}\ \text{pCi}) + (1.56 \times 10^{10}\ \text{pCi}) + (4.24 \times 10^{7}\ \text{pCi}) = \mathbf{2.56 \times 10^{10}\ pCi}$$

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April 2016		
Date	Reported Discharge	Hauled Wastewater
04/01/2016	299,015	0
04/02/2016	306,414	0
04/03/2016	309,564	0
04/04/2016	312,157	0
04/05/2016	313,957	0
04/06/2016	297,720	0
04/07/2016	132,606	0
04/08/2016	312,002	0
04/09/2016	284,390	0
04/10/2016	144,184	0
04/11/2016	142,616	0
04/12/2016	140,866	0
04/13/2016	139,522	0
04/14/2016	238,948	0
04/15/2016	301,842	0
04/16/2016	303,288	0
04/17/2016	304,204	0
04/18/2016	211,370	0
04/19/2016	144,624	0
04/20/2016	150,240	0
04/21/2016	147,240	0
04/22/2016	161,302	0
04/23/2016	159,236	0
04/24/2016	159,886	0
04/25/2016	73,048	0
04/26/2016	59,330	0
04/27/2016	144,058	0
04/28/2016	197,980	0
04/29/2016	273,300	0
04/30/2016	316,068	0
Totals:	**6,480,977**	**0**

Note: Daily values provided by Civil & Environmental Consultants, Inc.

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May 2016		
Date	Reported Discharge	Hauled Wastewater
05/01/2016	287,138	0
05/02/2016	285,880	0
05/03/2016	282,590	0
05/04/2016	199,996	0
05/05/2016	167,346	0
05/06/2016	159,164	0
05/07/2016	160,746	0
05/08/2016	158,764	0
05/09/2016	156,832	0
05/10/2016	142,200	0
05/11/2016	147,850	0
05/12/2016	216,690	0
05/13/2016	283,444	0
05/14/2016	276,576	0
05/15/2016	272,028	0
05/16/2016	271,716	0
05/17/2016	271,388	0
05/18/2016	236,336	0
05/19/2016	231,866	0
05/20/2016	275,350	0
05/21/2016	207,906	0
05/22/2016	144,794	0
05/23/2016	274,176	0
05/24/2016	292,142	0
05/25/2016	205,248	0
05/26/2016	151,222	0
05/27/2016	150,032	0
05/28/2016	254,262	0
05/29/2016	300,624	0
05/30/2016	280,752	0
05/31/2016	308,384	0
Totals:	**7,053,442**	**0**

Note: Daily values provided by Civil & Environmental Consultants, Inc.

June 2016		
Date	Reported Discharge	Hauled Wastewater
06/01/2016	270,140	0
06/02/2016	216,384	0
06/03/2016	296,112	0
06/04/2016	294,600	0
06/05/2016	290,196	0
06/06/2016	287,416	0
06/07/2016	173,124	0
06/08/2016	155,374	0
06/09/2016	155,776	0
06/10/2016	156,672	0
06/11/2016	155,708	0
06/12/2016	154,946	0
06/13/2016	218,324	0
06/14/2016	294,486	0
06/15/2016	294,340	0
06/16/2016	294,962	0
06/17/2016	115,716	0
06/18/2016	299,708	0
06/19/2016	299,630	0
06/20/2016	302,880	0
06/21/2016	141,920	0
06/22/2016	141,704	0
06/23/2016	144,224	0
06/24/2016	143,004	0
06/25/2016	139,316	0
06/26/2016	203,604	0
06/27/2016	294,896	0
06/28/2016	299,964	0
06/29/2016	292,340	0
06/30/2016	286,452	0
Totals:	**6,813,918**	**0**

Note: Daily values provided by Civil & Environmental Consultants, Inc.

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To: BRIDGETON LANDFILL LLC [1003803000]

From: Doug Mendoza

Date: July 28, 2016

Re: Follow up meeting for July 12, 2016 benzene event

On 7/28/16, Mark Bright from MSD Operations called me. He said that Operations and Bridgeton Landfill met yesterday and reviewed processes again re. taking atmosphere readings, 24 hour response, etc. The also went to Bridgeton pump station 1 and did another mock up test to compare procedures and instruments. The meters were placed on top of the structure. No benzene was detected. However, the set point or minimum levels (Mark wasn't sure) was at 5 ppb for Bridgeton Landfill's meter while MSD's meter was at 11.5 ppb. Mark is going to try to find out what should be getting used. Bridgeton Landfill also will be checking around throughout their facility for possible benzene sources making it to the pump station. Mark asked them to forward an email within 24 hours.

Doug Mendoza

Bridgeton Landfill
10380000

From: Rob G Daly
Sent: Wednesday, July 27, 2016 1:20 PM
To: Doug Mendoza
Subject: RE: BRIDGTON 1 BENZENE EVENT ON JULY 12 . INSTRUMENT OPERATED BY JOHN LAWSON.

not yet. hopefully tomorrow- we had a site meeting with landfill staff today

Rob Daly, P.E.
Division Manager- Pump Stations
Department of Operations
Metropolitan St Louis Sewer District
1025 Grand Glaize Parkway
Valley Park, MO 63088-1952
(636) 861-6706 (Office)

rdaly@stlmsd.com

From: Doug Mendoza
Sent: Wednesday, July 27, 2016 7:43 AM
To: Rob G Daly
Subject: FW: BRIDGTON 1 BENZENE EVENT ON JULY 12 . INSTRUMENT OPERATED BY JOHN LAWSON.

Rob – Have you heard back on this yet?

---Doug

From: Doug Mendoza
Sent: Monday, July 25, 2016 8:39 AM
To: Rob G Daly
Cc: John Lodderhose
Subject: RE: BRIDGTON 1 BENZENE EVENT ON JULY 12 . INSTRUMENT OPERATED BY JOHN LAWSON.

Thanks for the info Rob. Seems like it would have to be from gas migration. We will see if they had collection pumping go out or what.

From: Rob G Daly
Sent: Sunday, July 24, 2016 9:20 PM
To: Ben Thompson (bthompson@cecinc.com)
Cc: Fanning, Erin (EFanning@republicservices.com); Mark Bright; Graves, Stephen; Doug Mendoza
Subject: FW: BRIDGTON 1 BENZENE EVENT ON JULY 12 . INSTRUMENT OPERATED BY JOHN LAWSON.

Ben

Our site SOP for PS No. 1 has us using a benzene meter at PS No.1 See attached datalog info. We have our first 'benzene' event in a long time.

7/12/16 event.

Any idea of why- on the process side this may have occurred? Long story short- not wanting to re-activate site safety concerns amongst our personnel- so a prompt, detailed drill down into this with us is important.

Mark Bright will be contacting you Monday to set up a site meet to cross check our instruments with yours . This is easy to do and is good for both of us- lets at least check our instrument with yours at site and make sure we have no instrument errors.

More to follow- but we need to check in on this together. Thanks.

Rob Daly, P.E.
Division Manager- Pump Stations
Department of Operations
Metropolitan St Louis Sewer District
1025 Grand Glaize Parkway
Valley Park, MO 63088-1952
(636) 861-6706 (Office)

rdaly@stlmsd.com

From: Kevin George
Sent: Friday, July 22, 2016 2:06 PM
To: Rob G Daly
Cc: Jay Kniker; Mark Bright
Subject: BRIDGTON 1 BENZENE EVENT ON JULY 12 . INSTRUMENT OPERATED BY JOHN LAWSON.

Bridgeton Landfill
10038030

Doug Mendoza

From: Graves, Stephen <sgraves@cecinc.com>
Sent: Monday, July 25, 2016 9:26 AM
To: Doug Mendoza; Rob G Daly
Cc: Fanning, Erin (EFanning@republicservices.com); Kamp, Kevin; Thompson, Ben; Mark Bright; Jay Kniker
Subject: RE: Bridgeton Landfill & possible change from sodium nitrate to "H2S No More" imine for odor control in force main

Yes,

We understand and will schedule a presentation for whomever wants to come to see it followed up by a submittal of a formal request to change to the new product. Any possible implementation is still a few weeks away as we have temporarily put this project on a back burner while we work on some more urgent projects.

Thanks,

Steve

Stephen E. Graves, P.E. / Senior Project Manager
Civil & Environmental Consultants, Inc.
4848 Park 370 Blvd., Suite F · Hazelwood, MO 63042
Toll-Free: (866) 250-3679 · Fax: (314) 656-4595
Mobile: (314) 330-7512 · http://www.cecinc.com
Senior Leadership · Integrated Services · Personal Business Relationships

---

From: Doug Mendoza [mailto:DMENDOZA@stlmsd.com]
Sent: Monday, July 25, 2016 8:47 AM
To: Rob G Daly; Graves, Stephen
Cc: Fanning, Erin (EFanning@republicservices.com); Kamp, Kevin; Thompson, Ben; Mark Bright; Jay Kniker
Subject: RE: Bridgeton Landfill & possible change from sodium nitrate to "H2S No More" imine for odor control in force main

Steve,

The actual product and its components do not appear to be an issue for us. However, you will need to submit a written request for approval and change. At that point MSD can formally consider allowing the change. The information needed will be the same as what Rob Daly has requested below.

Thanks,
Doug Mendoza, P.E.
MSD Industrial Pretreatment Manager

From: Rob G Daly
Sent: Sunday, July 24, 2016 10:04 PM
To: Graves, Stephen
Cc: Fanning, Erin (EFanning@republicservices.com); Kamp, Kevin; Ben Thompson (bthompson@cecinc.com); Mark

Bright; Jay Kniker; Doug Mendoza
Subject: Bridgeton Landfill & possible change from sodium nitrate to "H2S No More" imine for odor control in force main

Steve

I advised Doug we had no concerns at this time- but have to admit- our level of understanding on your proposal is also relatively low right now.

We would like to ask that – once you have your plan ready- we would like to request a written (a descriptive email is fine on my end- not looking for a document any more formal than that on Ops end anyway- but Doug gets to ask for what he needs on his end) detail of what you are proposing to do, in what volumes, when, and what assessment protocols are built into the plan.

Specifically- could you maybe invite us (small group- me, Kniker, Bright, Mendoza) to the site (or at our house-) and do a short presentation on that plan- and help educate us on the product- and its perceived benefits? Before implementation is desirable. This is just partly professional curiosity and partly the 'better we understand the process- the better off we all are'.

I suspect this is a part of your 'response' on odor control that you referenced submitting to MSD/OPS last week?

Rob Daly, P.E.
Division Manager- Pump Stations
Department of Operations
Metropolitan St Louis Sewer District
1025 Grand Glaize Parkway
Valley Park, MO 63088-1952
(636) 861-6706 (Office)

rdaly@stlmsd.com

From: Doug Mendoza
Sent: Friday, July 22, 2016 7:59 AM
To: Rob G Daly
Subject: Bridgeton Landfill & possible change from sodium nitrate to "H2S No More" imine for odor control in force main

Rob,

I met yesterday with Kevin Kamp and Steve Graves from CEC about several items for Bridgeton Landfill. They mentioned that they had talked to you over the past few weeks about possibly changing the force main odor control chemical from sodium nitrate to "H2S No More" imine product. The cost is approximately the same, but it apparently retains its H2S reducing ability for much longer, up to 7 days, and treats a much higher level of COD. Would you please verify for me that you are aware of this, and let me know your thoughts or if you have any concerns?

Thanks,
Doug

Doug Mendoza

Bridgeton Landfill
10938030 00

From: Doug Mendoza
Sent: Monday, July 25, 2016 8:39 AM
To: Rob G Daly
Cc: John Lodderhose
Subject: RE: BRIDGTON 1 BENZENE EVENT ON JULY 12 . INSTRUMENT OPERATED BY JOHN LAWSON.

Thanks for the info Rob. Seems like it would have to be from gas migration. We will see if they had collection pumping go out or what.

From: Rob G Daly
Sent: Sunday, July 24, 2016 9:20 PM
To: Ben Thompson (bthompson@cecinc.com)
Cc: Fanning, Erin (EFanning@republicservices.com); Mark Bright; Graves, Stephen; Doug Mendoza
Subject: FW: BRIDGTON 1 BENZENE EVENT ON JULY 12 . INSTRUMENT OPERATED BY JOHN LAWSON.

Ben

Our site SOP for PS No. 1 has us using a benzene meter at PS No.1 See attached datalog info. We have our first 'benzene' event in a long time.

7/12/16 event.

Any idea of why- on the process side this may have occurred? Long story short- not wanting to re-activate site safety concerns amongst our personnel- so a prompt, detailed drill down into this with us is important.

Mark Bright will be contacting you Monday to set up a site meet to cross check our instruments with yours . This is easy to do and is good for both of us- lets at least check our instrument with yours at site and make sure we have no instrument errors.

More to follow- but we need to check in on this together. Thanks.

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(636) 861-6706 (Office)

rdaly@stlmsd.com

From: Kevin George
Sent: Friday, July 22, 2016 2:06 PM
To: Rob G Daly
Cc: Jay Kniker; Mark Bright
Subject: BRIDGTON 1 BENZENE EVENT ON JULY 12 . INSTRUMENT OPERATED BY JOHN LAWSON.

16/07/12 10:13

Summary

Unit Name	UltraRAE 3000(PGM-7360)
Unit SN	596-906573
Unit Firmware Ver	V1.20A
Running Mode	Hygiene Mode
Measure Type	Avg
Datalog Mode	Continuous
Datalog Type	Auto
Diagnostic Mode	No
Stop Reason	Power Down
Site ID	RAE00000
User ID	00000001
Begin	7/12/2016 10:13:24
End	7/12/2016 10:29:46
Sample Period(s)	60
Number of Records	16
Sensor	VOC(ppb)
Span	5000
Span 2	N/A
Low Alarm	500
High Alarm	5000
Over Alarm	5000000
STEL Alarm	2500
TWA Alarm	500
Measurement Gas	Benzene
Calibration Time	2/5/2016 13:27
Peak	N/A
Min	N/A
Average	N/A

Datalog

Index	Date/Time	VOC(ppb) (Avg)
001	7/12/2016 10:14:24	303
002	7/12/2016 10:15:24	236
003	7/12/2016 10:16:24	1059
004	7/12/2016 10:17:24	3652
005	7/12/2016 10:18:24	3468
006	7/12/2016 10:19:24	3905
007	7/12/2016 10:20:24	3182
008	7/12/2016 10:21:24	2754
009	7/12/2016 10:22:24	1481
010	7/12/2016 10:23:24	1570
011	7/12/2016 10:24:24	1244
012	7/12/2016 10:25:24	669
013	7/12/2016 10:26:24	266
014	7/12/2016 10:27:24	156
015	7/12/2016 10:28:24	112
016	7/12/2016 10:29:24	105
Peak		3905
Min		105
Average		1510

16/07/12 10:30

Summary

Unit Name	UltraRAE 3000(PGM-7360)
Unit SN	596-906573
Unit Firmware Ver	V1.20A
Running Mode	Hygiene Mode
Measure Type	Avg
Datalog Mode	Continuous
Datalog Type	Auto
Diagnostic Mode	No
Stop Reason	Power Down
Site ID	RAE00000
User ID	00000001
Begin	7/12/2016 10:30:22
End	7/12/2016 10:46:38
Sample Period(s)	60
Number of Records	16
Sensor	VOC(ppb)
Span	5000
Span 2	N/A
Low Alarm	500
High Alarm	5000
Over Alarm	5000000
STEL Alarm	2500
TWA Alarm	500
Measurement Gas	Benzene
Calibration Time	2/5/2016 13:27
Peak	N/A
Min	N/A
Average	N/A

Datalog

Index	Date/Time	VOC(ppb) (Avg)
001	7/12/2016 10:31:22	109
002	7/12/2016 10:32:22	287
003	7/12/2016 10:33:22	517
004	7/12/2016 10:34:22	260
005	7/12/2016 10:35:22	164
006	7/12/2016 10:36:22	284
007	7/12/2016 10:37:22	233
008	7/12/2016 10:38:22	190
009	7/12/2016 10:39:22	156
010	7/12/2016 10:40:22	123
011	7/12/2016 10:41:22	128
012	7/12/2016 10:42:22	113
013	7/12/2016 10:43:22	97
014	7/12/2016 10:44:22	89
015	7/12/2016 10:45:22	99
016	7/12/2016 10:46:22	59
Peak		517
Min		59
Average		182

Bridgeton Landfill
1003 803060

Doug Mendoza

From: Rob G Daly
Sent: Sunday, July 24, 2016 10:04 PM
To: Graves, Stephen
Cc: Fanning, Erin (EFanning@republicservices.com); Kamp, Kevin; Ben Thompson (bthompson@cecinc.com); Mark Bright; Jay Kniker; Doug Mendoza
Subject: Bridgeton Landfill & possible change from sodium nitrate to "H2S No More" imine for odor control in force main

Steve

I advised Doug we had no concerns at this time- but have to admit- our level of understanding on your proposal is also relatively low right now.

We would like to ask that – once you have your plan ready- we would like to request a written (a descriptive email is fine on my end- not looking for a document any more formal than that on Ops end anyway- but Doug gets to ask for what he needs on his end) detail of what you are proposing to do, in what volumes, when, and what assessment protocols are built into the plan.

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I suspect this is a part of your 'response' on odor control that you referenced submitting to MSD/OPS last week?

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rdaly@stlmsd.com

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Thanks,

Doug Mendoza

Bridgeton Landfill
16038070050

From: Rob G Daly
Sent: Sunday, July 24, 2016 9:57 PM
To: Doug Mendoza
Cc: Mark Bright; Jay Kniker
Subject: RE: Bridgeton Landfill & possible change from sodium nitrate to "H2S No More" imine for odor control in force main

We are aware of it- no concerns.

Thank you for keeping me in the loop- they were supposed to run the 'chemistry' by you- but we have asked them for a 'presentation' on the product before implementation- to the MSD group. I intended to invite you, me, Kniker, Bright to that and will keep it short- but we are trying to continue to reiterate the importance of them communicating with us appropriately- especially since they have had some personnel changes on site (Power is gone and so is the former Plant Manager Natalie).

We will be discussing the details of the proposed pilot run of this product before execution. Will keep you advised- thanks for doing same- they do like to try to divide and conquer there....

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Thanks,
Doug

Doug Mendoza

Bridgeton Landfill 03
1003803000

From: Fanning, Erin <EFanning@republicservices.com>
Sent: Friday, July 15, 2016 3:13 PM
To: Doug Mendoza
Cc: Graves, Stephen; Kamp, Kevin; Jonathan Wilkinson (jwilkinson@feezorengineering.com); Kevin O'Leary; Galbraith, Ed (egalbraith@cecinc.com); Bauer, Nicholas
Subject: Permit No. 1003803000-1 monthly volume discharge report
Attachments: 4337 MSD Monthly Discharge Reporting (06-2016).xlsx; 4337 MSD Monthly Discharge Reporting (06-2016).pdf

Good afternoon Doug,

In accordance with Section II, Conditions D.2 and D.3 of Permit No. 1003803000-1, attached please find the June 2016 monthly volume of wastewater discharged from the Bridgeton pretreatment plant.

We are also honing in on a time to meet regarding the ultimate BOD test during the week of July 25th that will work for all parties. If there are any timeframes that will not work for you, please let me know. We plan to have this on the schedule by end of day Monday.

Thank you very much for your time, have a good weekend, and please do not hesitate to contact me with any questions.

Kindest regards,

Erin Fanning
Division Manager

Bridgeton Landfill, LLC.
13570 Saint Charles Rock Road
Bridgeton, MO 63044
Cell: (209) 227-9531

Bridgeton Landfill Pretreatment Facility - Permit #1003803000 -1.2
Monthly Discharge Report

Date	**Discharge** Sample Point **013**	**Hauled** (gallons) Sample Point **014**	**Forcemain flush water**
6/1/16	270,140	0	0
6/2/16	216,384	0	0
6/3/16	296,112	0	0
6/4/16	294,600	0	0
6/5/16	290,196	0	0
6/6/16	287,416	0	0
6/7/16	173,124	0	0
6/8/16	155,374	0	0
6/9/16	155,776	0	0
6/10/16	156,672	0	0
6/11/16	155,708	0	0
6/12/16	154,946	0	0
6/13/16	218,324	0	0
6/14/16	294,486	0	0
6/15/16	294,340	0	0
6/16/16	294,962	0	0
6/17/16	115,716	0	61200
6/18/16	299,708	0	0
6/19/16	299,630	0	0
6/20/16	302,880	0	0
6/21/16	141,920	0	0
6/22/16	141,704	0	0
6/23/16	144,224	0	0
6/24/16	143,004	0	0
6/25/16	139,316	0	0
6/26/16	203,604	0	0
6/27/16	294,896	0	0
6/28/16	299,964	0	0
6/29/16	292,340	0	0
6/30/16	286,452	0	0
Total	6,813,918	0	61,200

Comments:
Sample Point 013 is using an Emerson calibrated flow meter at the discharge location.

Bridgeton Landfill
10738036 FF

Doug Mendoza

From:	Doug Mendoza
Sent:	Tuesday, July 12, 2016 3:15 PM
To:	Jay Hoskins; Cindy Kretzer
Subject:	RE: westlake SFS map

Hey, I just got off the phone with a Republic Waste rep (Nick Baur, former MSD employee now with Republic, moving over to Bridgeton Landfill) and CEC's Ed Galbraith. They verified that Bridgeton Landfill does not generate RCRA remediation wastewater. It has never been under a RCRA permit or corrective action plan.

From: Doug Mendoza
Sent: Monday, July 11, 2016 10:54 AM
To: Jay Hoskins; Cindy Kretzer
Subject: RE: westlake SFS map

Okay. I see that on EPA's Westlake Landfill webpage, too. I believe it is probably because of the past ownership of the site vs. radiological contamination.

EPA's superfund site says:

The 200-acre West Lake Landfill Site is located at 13570 St. Charles Rock Road in the Earth City Industrial Park in Bridgeton, Missouri. It is surrounded by commercial/industrial and agricultural land on the eastern edge of the Missouri River flood plain. From 1939 to 1985, limestone was quarried on site. Beginning in 1962, parts of the site property were used for landfilling of municipal solid waste and construction debris. Two areas became radiologically contaminated in 1973 when soils mixed with uranium ore processing residues were used as daily cover in the landfilling operation. An adjacent property has also been impacted by erosional migration of radiologically contaminated material from the landfill. This property, known as the Buffer Zone or the Crossroad Property, was subsequently purchased by the landfill operator. It is considered part of the site and is enclosed within the site's perimeter security fence. Also located on the site is the Bridgeton Sanitary Landfill, which ceased operations in 2005. This sanitary landfill did not receive any radiologically contaminated soil.

This site also lists the "contaminated groundwater status" for Westlake Landfill as Under Control. This means:

Contaminated ground water migration is under control - indicates that all information on known and reasonably expected ground water contamination has been reviewed and that the migration of contaminated ground water is stabilized and there is no unacceptable discharge to surface water and monitoring will be conducted to confirm that affected ground water remains in the original area of contamination.

I also do not recall Bridgeton Landfill's leachate being classified as RCRA due to the oxidation/thermal event. I contacted Bridgeton Landfill to check on this, and the contact did not think so either. She will reach out to a couple other people on this and said she would call me back today.

As far as the specific NPDES application questions:

21. CERCLA (SUPERFUND) WASTEWATER, RCRA REMEDIATION/CORRECTIVE ACTION WASTEWATER, AND OTHER REMEDIAL ACTIVITY WASTEWATER

21.1 Does the treatment works currently (or has it been notified that it will) receive waste from remedial activities?

We already mention the special discharge wastes.

For Bridgeton Landfill, I would think that the answer is no, since there are no remedial activities except for the thermal event's leachate. But if it turns out that the thermal event has been classed as RCRA somehow, then if pretreatment of the wastewater is considered remedial activity the answer would be yes.

Or you could just be safe and include Bridgeton Landfill with an explanation that while it is inside the Westlake Landfill's CERCLA boundaries it is not contaminated and does not discharge radiologically contaminated wastewater to MSD. But there is a thermal/oxidation event that impacts the leachate discharged to MSD.

21.2 Waste Origin. Describe the site and type of facility at which the CERCLA/RCRA/or other remedial waste originates (or is expected to originate in the next five years).

So if you play it safe, then this answer is Bridgeton Landfill – closed sanitary landfill with an underground thermal/oxidation event.

21.3 List the hazardous constituents that are received (or are expected to be received). Included data on volume and concentration, if known. (Attach additional sheets if necessary)

Continuing to be safe: I would just attach the last few months of data results. See attached.

21.4 Waste Treatment

Yes. Equalization, pH adjustment, metals removal, aeration, biological treatment, ultrafiltration.

Removal efficiency – I'm not sure. I don't have quick access to data for the raw leachate.

Continuous discharge.

From: Jay Hoskins
Sent: Monday, July 11, 2016 8:42 AM
To: Cindy Kretzer; Doug Mendoza
Subject: westlake SFS map

https://www.epa.gov/sites/production/files/2016-03/west_lake_landfill_map_-_2016.png

Jay Hoskins, P.E.
Metropolitan St. Louis Sewer District
Engineering Department – Environmental Compliance
10 E. Grand Ave.
St. Louis, MO 63147
Phone: 314-436-8757

Doug Mendoza

Bridgeton Landfill
1003803000

From: Fanning, Erin <EFanning@republicservices.com>
Sent: Thursday, June 16, 2016 8:19 AM
To: Doug Mendoza
Cc: Graves, Stephen; Kamp, Kevin; Jonathan Wilkinson (jwilkinson@feezorengineering.com); Kevin O'Leary; Galbraith, Ed (egalbraith@cecinc.com); Christopher J. Bulmahn
Subject: RE: Permit No. 1003803000-1 monthly volume discharge report
Attachments: 4337 MSD Monthly Discharge Reporting (05-2016).xlsx; 4337 MSD Monthly Discharge Reporting (05-2016).pdf

Good morning Doug,

Attached please find the spreadsheet along with the PDF for your use. The ultimate BOD test will be completed towards the end of this month. Let me review the schedule with CEC, and we will get back to you with more information on this matter. Thanks!

Thank you very much for your time, and please do not hesitate to contact me with any questions.

Kindest regards,

Erin Fanning
Division Manager

Bridgeton Landfill, LLC.
13570 Saint Charles Rock Road
Bridgeton, MO 63044
Cell: (209) 227-9531

From: Doug Mendoza [mailto:DMENDOZA@stlmsd.com]
Sent: Thursday, June 16, 2016 7:15 AM
To: Fanning, Erin
Cc: Graves, Stephen; Kamp, Kevin; Jonathan Wilkinson (jwilkinson@feezorengineering.com); Kevin O'Leary; Galbraith, Ed (egalbraith@cecinc.com); Christopher J. Bulmahn
Subject: RE: Permit No. 1003803000-1 monthly volume discharge report

Erin,

1. Would you please either submit the reports with a total for the month included, or submit it as a spreadsheet that allows us to total the volumes? (Otherwise we have to use a calculator and manually enter each of the volumes.)

2. Please provide an update on status of ultimate BOD determination for Bridgeton Landfill's discharge. If this is not moving forward, I will need to implement a flat surcharge based on COD. Currently I have been using the most recent COD readings for each month's surcharge. However, the discharge has been at relatively steady-state for some time now, and our normal procedure is to use a long-term average for surcharge levels.

Thanks,
Doug Mendoza
MSD Industrial Pretreatment Manager

From: Fanning, Erin [mailto:EFanning@republicservices.com]
Sent: Wednesday, June 15, 2016 9:30 PM
To: Doug Mendoza

Cc: Graves, Stephen; Kamp, Kevin; Jonathan Wilkinson (jwilkinson@feezorengineering.com); Kevin O'Leary; Galbraith, Ed (egalbraith@cecinc.com)
Subject: Permit No. 1003803000-1 monthly volume discharge report

Good evening Doug,

In accordance with Section II, Conditions D.2 and D.3 of Permit No. 1003803000-1, attached please find the May 2016 monthly volume of wastewater discharged from the Bridgeton pretreatment plant. Thank you very much for your time, have an great week, and please do not hesitate to contact me with any questions.

Kindest regards,

Erin Fanning
Division Manager

Bridgeton Landfill, LLC.
13570 Saint Charles Rock Road
Bridgeton, MO 63044
Cell: (209) 227-9531

Bridgeton Landfill Pretreatment Facility - Permit #1003803000 -1.2
Monthly Discharge Report

Date	**Discharge** Sample Point **013**	**Hauled** (gallons) Sample Point **014**	**Forcemain flush water**
5/1/16	287,138	0	0
5/2/16	285,880	0	0
5/3/16	282,590	0	0
5/4/16	199,996	0	0
5/5/16	167,346	0	0
5/6/16	159,164	0	0
5/7/16	160,746	0	0
5/8/16	158,764	0	0
5/9/16	156,832	0	0
5/10/16	142,200	0	0
5/11/16	147,850	0	0
5/12/16	216,690	0	0
5/13/16	283,444	0	0
5/14/16	276,576	0	0
5/15/16	272,028	0	0
5/16/16	271,716	0	0
5/17/16	271,388	0	0
5/18/16	236,336	0	0
5/19/16	231,866	0	0
5/20/16	275,350	0	0
5/21/16	207,906	0	0
5/22/16	144,794	0	0
5/23/16	274,176	0	0
5/24/16	292,142	0	0
5/25/16	205,248	0	0
5/26/16	151,222	0	0
5/27/16	150,032	0	0
5/28/16	254,262	0	0
5/29/16	300,624	0	0
5/30/16	280,752	0	0
5/31/16	308,384	0	0

Comments:
Sample Point 013 is using an Emerson calibrated flow meter at the discharge location.

TO: **File**

FROM: Angie McDonough amm

DATE: June 16, 2016

RE: **BRIDGETON LANDFILL LLC**
WASTEWATER USER CHARGE BILLING
ACCOUNT NUMBER 0039145-8

Pursuant to the MSD Industrial Wastewater Discharge Permit for the above referenced facility, this facility will be billed for the following charges for the indicated billing period:

DISCHARGE PERIOD: **May 2016**

BILLING IS FOR: **On- Site Special Discharge**

SAMPLE POINT: **013**

Billing Item	Quantity	Units	Rate	Charge
Volume	9,430	CcF	$ 3.21 /CcF	$30,270.30
COD Extra-Strength Surcharge	1,690	mg/L	$316.19 /ton	$10,140.07
Total	--	--	--	**$40,410.37**

If you have any questions, please call me at extension 8762.

bv

ec: Brian Gibson
Doug Mendoza
Bridgeton Republic Services

FILE: IU; Bridgeton Landfill LLC, 1003-8030-00

Doug Mendoza

Bridgeton Landfill

From: Fanning, Erin <EFanning@republicservices.com>
Sent: Wednesday, May 18, 2016 4:22 PM
To: Doug Mendoza; 'Graves, Stephen'
Cc: Kamp, Kevin; Tom Boehm
Subject: RE: Gas condensate volume

Good afternoon Doug and Tom,

Although the percentage of condensate relative to total plant influent is not metered, it is estimated that total influent is comprised of approximately 95% leachate and 5% condensate, subject to seasonal and operational variability.

Thank you very much for your time, and please do not hesitate to contact me with any questions.

Kindest regards,

Erin Fanning
Environmental Manager

Bridgeton Landfill, LLC.
13570 Saint Charles Rock Road
Bridgeton, MO 63044
Cell: (209) 227-9531

-----Original Message-----
From: Doug Mendoza [mailto:DMENDOZA@stlmsd.com]
Sent: Wednesday, May 18, 2016 9:11 AM
To: Fanning, Erin; 'Graves, Stephen'
Cc: Kamp, Kevin
Subject: RE: Gas condensate volume

Erin,

Have you been able to do anything with this yet?

Doug

From: Fanning, Erin [EFanning@republicservices.com]
Sent: Wednesday, May 04, 2016 1:47 PM
To: Doug Mendoza; 'Graves, Stephen'
Cc: Kamp, Kevin
Subject: RE: Gas condensate volume

Hi Doug,

I am looking into this now and will get back to you shortly. Thanks!

Thank you very much for your time, and please do not hesitate to contact me with any questions.

Kindest regards,

Erin Fanning
Environmental Manager

Bridgeton Landfill, LLC.
13570 Saint Charles Rock Road
Bridgeton, MO 63044
Cell: (209) 227-9531

From: Doug Mendoza [mailto:DMENDOZA@stlmsd.com]
Sent: Tuesday, May 03, 2016 7:16 AM
To: 'Graves, Stephen'
Cc: Fanning, Erin; Kamp, Kevin
Subject: RE: Gas condensate volume

Erin,

have you had any luck with this? I thought that Bridgeton Landfill had the incoming volumes to the pretreatment system, but do not remember exactly.

Thanks,
Doug Mendoza
MSD Industrial Pretreatment Manager

From: Graves, Stephen [mailto:sgraves@cecinc.com]
Sent: Thursday, April 21, 2016 10:23 AM
To: Doug Mendoza
Cc: Erin Fanning (EFanning@republicservices.com<mailto:EFanning@republicservices.com>); Kamp, Kevin
Subject: RE: Gas condensate volume

Doug,

I don't know what the volumes coming from different areas of the landfill are but by way of copying Erin on this I'm asking if she can obtain the information you need.

Respectfully,

Steve

Stephen E. Graves, P.E. / Senior Project Manager Civil & Environmental Consultants, Inc.
4848 Park 370 Blvd., Suite F * Hazelwood, MO 63042
Toll-Free: (866) 250-3679 * Fax: (314) 656-4595
Mobile: (314) 330-7512 * http://www.cecinc.com Senior Leadership * Integrated Services * Personal Business Relationships

From: Doug Mendoza [mailto:DMENDOZA@stlmsd.com]

Sent: Thursday, April 21, 2016 9:58 AM
To: Graves, Stephen
Subject: Gas condensate volume

Steve,

I have been trying to get a better handle on the volume of gas condensate vs. leachate generated by our various landfills that discharge to MSD. I recently have gotten this information from the other landfills discharging to MSD. I thought I already had the information from Bridgeton Landfill, from a couple of years back, but cannot locate it in the several-feet-high stack of correspondence between MSD and Bridgeton Landfill.

Could you please give me data on the gas condensate volume generated vs. leachate volume generated by Bridgeton Landfill? If you have a summary of readings, that would be great. Otherwise just an approximation will work. I know that the condensate volume can vary depending on gas extraction needs, so I realize it may not be a consistent volume/ratio.

Thanks
Doug Mendoza

METROPOLITAN ST. LOUIS SEWER DISTRICT
INDUSTRIAL FACILITY INSPECTION REPORT

Company: Bridgeton Landfill LLC Account #: 1003803000
Premise Address: 13570 St Charles Rk Rd Zip Code: 63044
MSD Classes: SIU ☒ Non-Significant CIU ☐ CIU ☐ Surcharge ☐ Non-Toxic Process Water/Wastes ☐
Toxics-Bearing Waste ☒ No Process Discharge ☐ Multi-User ☐ Special Handling/Billing ☒
Company Representative: Kevin Kamp
Title: CEC - Project Manager Phone#: 314.744.8165
Inspector: Tom Boehm
Others Present: Stephen Graves - CEC; Ben Thompson - CEC;
Inspection Date: 5/18/16 Time: From 09:00 am To 10:30 am (Last Insp. 6/5/15)

NOTE: ALL ITEMS ARE TO BE COMPLETED BASED ON EVENTS SINCE LAST INSPECTION. ANSWERS ARE BASED ON INFORMATION OBTAINED OR PROVIDED BY COMPANY DURING INSPECTION, AS WELL AS INFORMATION IN FILE.

***** DATABASE ALSO UPDATED WITH APPROPRIATE CHANGES - see attached database reports *****

1. A. ARE THERE ADDITIONAL NON-STORMWATER ACCOUNT NUMBERS? Yes ☐ No ☒
   List them, note any changes: _____
   B. Were any changes (including to the primary or changes only to suffixes) for acct no's with RFs? NA ☒ Yes ☐ No ☐
   C. If yes to B, was Cost Recovery Unit informed of the change(s)? NA ☐ Yes ☐ No ☐
   D. Did all acct no's have water usage on PIMS? Yes ☒ No ☐
   E. If no to D, explain: _____

2. PROCESSES & CLEANUP/WASHDOWN:

	Cont/ Batch?	Water/Liquids Used?	DISCHARGE Frequency (or how else disposed?)	Sample pt.
Closed sanitary landfill (leachate and methane condensate collection)	Batch	Yes	Daily	013 or 014
Trash transfer station washdown and outdoor truck wash (directed to sump in transfer station)	Batch	Yes	Daily	013 or 014
	(None)	N/A		
	(None)	N/A		
	(None)	N/A		
	(None)	N/A		

3. PRETREATMENT (other than grease traps) - describe:

	Sample pt.
Equalization, Screening, Aeration, pH adjustment, Flocculation, Clarification, Activated sludge biological treatment, Ultrafiltration, Metals precipitation	013 (014)

4. DOES COMPANY HAVE ANY GREASE TRAPS? Yes ☐ No ☒
If yes: A. List sample points: _____
   B. What is the frequency for cleaning & maintenance? _____
   C. Are any additives used in traps? Yes ☐ No ☐
   D. If yes to C, was company warned MSD will bill them for blockages they cause? Yes ☐ No ☐
   E. Was company informed that MSD performs separate grease trap inspections? Yes ☐ No ☐

5. HAS COMPANY CONSTRUCTED NEW BLDGS/ADDITIONS WITH SEWERS SINCE LAST INSPECTION? Yes ☐ No ☒
If yes: A. Ask company: Did they notify MSD's Plan Review group? Unknown ☐ Yes ☐ No ☐
   B. If no or unknown, has inspector notified Plan Review group? Yes ☐ No ☐
   C. Comments: _____

6. HAS COMPANY BEGUN DISCHARGING ANY NEW POLLUTANTS SINCE THE LAST INSPECTION? Yes☐ No☒

If yes: A. List pollutants & process: _____
B. Will MSD STP exceed existing NPDES discharge limit(s)? Yes☐ No☐
C. Will MSD STP's discharge exceed 0.1 mg/l for any new pollutant? Yes☐ No☐
(MSD must notify MDNR if B or C is yes and discharge will continue [40CFR122.42(b)].)
D. Comments: _____

7. ARE THERE ANY FEDERALLY REGULATED (40 CFR 405-471) OPERATIONS THAT ARE "NOT APPLICABLE"? Yes☐ No☒
(including those that are 'No PSES' and 'General Stds Only')

If yes: A. List regulation & describe operations (including any discharge):
_____
B. Explain why it is N/A: _____

8. ARE THERE ANY FEDERALLY REGULATED (40 CFR 405-471) OPERATIONS SUBJECT TO DISCHARGE LIMITS? Yes☐ No☒

If yes: A. List regulation & describe operations (including any discharge):
_____
B. Is maximum daily categorical discharge ≤ 100 GPD? (includes batch discharges) Yes☐ No☒

If yes to B: C. Batch ☐ or Continuous ☐? Volume verified how? _____
D. Does company ever discharge untreated, concentrated categorical wastewater? Yes☐ No☐
E. Was company in SNC during any part of the previous **24** months? Yes☐ No☐
F. Date of last NSCIU Certification Statement: _____ or not currently NSCIU ☐
(If no to B, yes to D or E, or Cert. Statement not submitted as required, company is not eligible to be an NSCIU)

9. HAS COMPANY CERTIFIED TO THE ABSENCE OF SPECIFIC CATEGORICAL POLLUTANTS? Yes☐ No☒
(New certification also is required for each permit renewal)

If yes: A. Certification date: _____
B. Pollutants accepted by MSD as absent: _____
C Were any requested "absent" pollutants rejected by MSD? Yes☐ No☐
If yes to C: D. List them and explain why: _____
E. Were all the accepted pollutants non-detect in all monitoring since certification was approved? Yes☐ No☐
(If compared to intake water levels, explain details below)
If no to E: F. Explain: _____
G. Does Wastewater Discharge Permit need to be updated to remove detected pollutants? Yes☐ No☐
H. Comments: _____

10. DOES CATEGORICAL WASTEWATER COMBINE WITH NON-CATEGORICAL WW PRIOR TO SAMPLING? Yes☐ No☒

If yes: A. At which points? _____
B. Current applied factor: _____ Is it correct? Yes☐ No☐
C. If no, list correct factor/explain? _____

11. IS ANY WASTEWATER SUBJECT TO PRODUCTION ☐ OR MASS ☐ BASED STANDARDS? Yes☐ No☒

If yes: A. At which points? _____
B. Since calculation of the current limits, has the long term avg production rate or discharge volume changed by 20% or more? Yes☐ No☐
C. If yes to B, explain: _____

12. ARE ANY RADIOACTIVE MATERIALS HANDLED? Yes☒ No☐

If yes: A. Describe operations & disposal: The 2 known rad waste cells are not served by leachate collection system;
B. If non-exempt & disposed to sewer, does company submit quarterly reports to MSD? NA☐ Yes☒ No☐
(If No to B, write company & require quarterly reports of discharge to sewer – or have permit revised as needed)
C. Amount discharged in most recent four complete calendar quarters: Previous 4 quarters = 193.2 mCi (1st-4th '15)
D. Is company in compliance with requirements of sewer use ordinance prohibition? Yes☒ No☐

13. DOES COMPANY GENERATE WASTES/WASTEWATER BY GENETIC ENGINEERING RESEARCH? Yes☐ No☒

If yes: A. Does company render wastes/wastewater innocuous? Yes☐ No☐

B. If yes, describe how: _____

C. Does company have MSD authorization for disposal to sewer? NA☐ Yes☐ No☐

D. Most recent authorization date: _____

14. DOES PROCESS or P&E WASHDOWN WATER USE APPEAR EXCESSIVE? Yes☐ No☒
(IS COMPANY USING DILUTION TO MEET DISCHARGE LIMITATIONS?)

A. Explain how use was verified & any needed changes:
Washdown of the transfer station and yard equipment on washpad directed to PT; no excess usage noted;

15. BASED ON OBSERVATIONS DURING INSPECTION, DOES COMPANY APPEAR TO HAVE SOME WATER THAT IS NOT DISCHARGED TO SEWER? Yes☒ No☐

If yes: A. Describe: Dust control for roads; some hauled to BP HWRS;

B. Was "Return Factor Program" brochure given to company? Yes☒ No☐
(regardless of whether some water is not discharged to sewer)

16. HAS COMPANY BEEN GRANTED A VARIANCE FROM DISCHARGE LIMITATIONS CONTAINED IN THE SEWER USE ORDINANCE? Yes☒ No☐

If yes: A. Pollutant(s) and variance limit: Numerous overrides;

B. Latest approval date: 03/01/15

C. Is the approved variance more than 5 years old? Yes☒ No☐
(If yes to C, a new variance must be requested – write company)

17. HAVE ANY NUMERICAL LIMITATIONS BEEN APPLIED TO COMPANY, IN ADDITION TO THOSE ALREADY CONTAINED IN THE SEWER USE ORDINANCE? Yes☐ No☒

If yes: A. Pollutant(s) and discharge limit: _____

B. Date originally applied: _____, or as part of variance above? ☐

18. HAS COMPANY EXCEEDED ORDINANCE DISCHARGE LIMITS SINCE LAST INSPECTION OR WITHIN THE LAST 12 MONTHS (if last insp <12 months ago)? Yes☐ No☒

If yes:

A. Pollutant	When	Sample Points	Is problem resolved? Y/N	Describe
			N/A	
			N/A	
			N/A	
			N/A	
			N/A	

B. Comments: _____

19. HAS COMPANY EXCEEDED CATEGORICAL PRETREATMENT LIMITS SINCE THE LAST INSPECTION OR WITHIN LAST 12 MONTHS (if last insp <12 months ago)? NA☒ Yes☐ No☐

If yes:

A. Pollutant	When	Sample Points	Is problem resolved? Y/N	Describe
			N/A	
			N/A	
			N/A	
			N/A	
			N/A	

B. Comments: _____

20. HAVE THERE BEEN ANY PROBLEM DISCHARGES SINCE LAST INSPECTION? Yes☐ No☒

If yes: A. Upsets? ☐ Bypasses of pretreatment facilities? ☐
Spills? ☐ Slug discharges? ☐ Other? _____

B. Explain any marked: _____

21. COULD SPILLS OR LEAKS OF ANY PROCESS TANKS, OR STORAGE TANKS, OR STORED WASTES, OR STORED CHEMICALS EASILY REACH SANITARY SEWERS OR STORM DRAINS? Yes☐ No☒

If yes: A. What needs to be done?

_____

If no: B. How are they controlled?
Leachate collection, treatment building and AST farm are contained; Diesel/gas ASTs are contained;

22. BASED ON OBSERVATIONS DURING INSPECTION, ARE THERE ANY AREAS WHERE COMPANY ACTIVITIES APPEAR TO IMPAIR STORMWATER RUNOFF? Yes☐ No☒

If yes: A. Describe: Storm runoff is regulated via NPDES Permit;
B. What needs to be done? _____
C. Was "Illicit Stormwater Discharges" brochure given to company? Yes☒ No☐
(regardless of whether there are any problem areas)

23. DOES COMPANY HAVE ANY WRITTEN SLUG DISCHARGE CONTROL (INCLUDES SPILLS) PLANS [40CFR403.8(f)(2)(vi)]? Yes☒ No☐

If yes: A.

	Title (actual title, NOT "SPCCP")	Last Update
1.	Spill and Slug Control Plan for BLF (see comments)	07/01/14
2.		

B. Were Plans reviewed for completeness, especially regarding batch discharges/slugs and Q.19/20/21? Yes☒ No☐
(must be done)
C. Are updates needed to existing Plans? (If yes, write company & require) Yes☐ No☒
D. Are any Plans needed (either in addition to those listed in Part A, or if there currently are no written control plans)? (If yes, write company & require) Yes☐ No☒
E. Explain why/why not for C or D: Treatment system and storage tanks are contained;

24. DOES COMPANY HAVE ANY MAINTENANCE SHOP PARTS WASHERS? Yes☐ No☒

If yes: A. Parts washer solvent name: _____
B. Priority pollutants (or "none"): _____
C. How is spent solvent disposed? _____
(These solvents are not included in database's priority pollutants list, nor monitored for unless conditions show potential discharges)

25. ARE ANY ORGANICS OR SOLVENTS USED (OTHER THAN IN PARTS WASHERS)? Yes☒ No☐

If yes: A.

Solvent name/ components	Used for?	413/433/469 Process?	How disposed?	Priority Pollutant?
Diesel (2X500 gallon double wall AST); Gasoline (3X300 gallon ASTs w/ catch basins); (BTEX and naphthalene);	Fuel	Yes☐ No☒	Burned	Yes☒ No☐
		Yes☐ No☐		Yes☐ No☐
		Yes☐ No☐		Yes☐ No☐
		Yes☐ No☐		Yes☐ No☐
		Yes☐ No☐		Yes☐ No☐
		Yes☐ No☐		Yes☐ No☐

26. DOES COMPANY HAVE A 413/433/469-REGULATORY "SOLVENT MANAGEMENT PLAN"? Yes☐ No☒
(Applies if co. has 413/433/469 processes, whether or not solvents used)

If yes: A. Is it part of a Spill/Slug Control Plan listed above? Yes[1.☐ 2.☐] No☐
B. If no to A, date of last update for SMP: _____
C. Is there a copy of the Spill/Slug Plan or SMP in the files? Yes☐ No☐
D. Does SMP address all 413/433/469 solvents? (or verify "none" ☐) Yes☐ No☐
(If no to C or D, write company and require submittal and/or update)

27. ARE EMERGENCY NOTIFICATION PROCEDURES POSTED THAT INCLUDE MSD CONTACTS? Yes☐ No☒
A. Was company provided notification cards & told to post where emergency response personnel can locate them? Yes☒ No☐
(Must post if company generates process wastewater or stores chemicals of concern)

28. IS COMPANY REQUIRED TO SELF-MONITOR ANY OF THEIR DISCHARGES? Yes☒ No☐

If yes:
- A. Is requirement contained in permit ☒ or other document ☐.
- B. If other document, date & description: _____
- C. How frequently is sampling required? Quarterly
- D. How frequently are reports required? Quarterly
- E. Have reports been on-time, complete & signed by proper person? Yes☒ No☐
- F. If no, explain: _____

29. DOES COMPANY SELF-MONITOR ITS WASTEWATER DISCHARGE? Yes☒ No☐

If yes:
- A. Does sample collection time period match co's production shifts? Yes☒ No☐
- B. Are representative grab/comp samples collected? Yes☒ No☐
- C. Are EPA-approved 40 CFR 136 wastewater test methods used? Yes☒ No☐
- D. Does company measure pH and/or temperature itself? Yes☐ No☒

If yes:
- E. Have the company show equipment and procedure (meters, calibration stds, etc.). Is measurement performed properly? Yes☐ No☐
- F. If no to A,B,C, or E, explain needed changes: _____

30. DOES COMPANY CONTINUOUSLY MONITOR AT SAMPLE POINT AND KEEP A PERMANENT RECORD FOR: pH ☐, TEMP ☐, LEL ☐? Yes☐ No☒

If yes:
- A. At which SPs? _____
- B. Are discharge limits in PIMS "alert only"? (If not, change to that & make note: _____) Yes☐ No☐
- C. Does company submit quarterly summaries? Yes☐ No☐
- D. If no, explain: _____

31. DOES MSD SPLIT SAMPLES WITH THE COMPANY? Yes☐ No☒

If yes:
- A. Is company having the samples analyzed Yes☐ No☐
- B. How does company insure proper preservation, holding times & analytical methods? _____
- C. Has company submitted results of all split sample analyses since the last insp? Yes☐ No☐
- D. Have results been submitted within 28 days of the collection's calendar quarter? Yes☐ No☐
- E. If no to C, or D, explain: _____
- F. Does company still want to split samples? Yes☐ No☐
- G. Comments: _____

32. IS COMPANY REQUIRED TO REGULARLY SUBMIT ANY REPORTS OTHER THAN SELF-MONITORING REPORTS? Yes☒ No☐

If yes:
- A. Is requirement contained in permit ☐ or other document ☐.
- B. If other document, date & description: 'MSD Terms for Special Discharge Approval of Hauled Waste Discharge to our Bissell Point Wastewater Treatment Plant' 04/24/13;
- C. What is required to be reported? Flows
- D. How frequently are reports required? Monthly
- E. Have reports been on-time, complete & signed by proper person? Yes☒ No☐
- F. If no, explain: _____

33. IS COMPANY UNDER ANY ENVIRONMENTAL ENFORCEMENT ORDERS OR REQUIREMENTS TO SUBMIT COMPLIANCE SCHEDULE REPORTS? Yes☐ No☒

If yes:
- A. Type and date: _____
- B. Have the reports & actions been on-time & complete? Yes☐ No☐
- C. If no, explain: _____

34. ASK COMPANY: IS COMPANY IN COMPLIANCE W/APPLICABLE NESHAP REGULATIONS FOR WW DISCHARGES? Yes☒ No☐
[To see if 40CFR63 applies to MSD plant, per §§63.1580(b) & 63.1582(a). Some MDNR-issued Title V air permits for specific processes allow pre-approved WW discharge. City/County-issued air permits are not NESHAP permits.]

If no:
- A. Describe: Not subject to NESHAP, but Title V air permit methane generation;
- B. Was MDNR Air Pollution Control informed? (must be done) Yes☐ No☐

35. DOES COMPANY RETAIN ALL WASTEWATER RECORDS FOR AT LEAST 5 YEARS? Yes☒ No☐

If no: A. How long does company retain records? _____

B. Was company told to retain for at least 5 years, per ordinance? Yes☐ No☐

C. Where are they kept? In general office files;

36. IS COMPANY CLASSIFIED AS A SIGNIFICANT INDUSTRIAL USER (SIU)? Yes☒ No☐

If yes: A. Check & explain applicable criteria:

- ☐ Process subject to categorical stds under 40 CFR 403.6. Which cat. stds? _____
- ☒ Process discharge => 25,000 GPD Total process volume: 315K gpd
- ☐ Process discharge => 5% of TP ADW hydraulic capacity TP ADW hydraulic capacity: _____. Percent: _____
- ☐ Process discharge => 5% of TP ADW organic capacity Which organic pollutant? _____ TP ADW organic capacity: _____. Percent: _____
- ☒ Reasonable potential for adverse effect on operations Why? Undocumented wastes and unpredictable pollutants in leachate;
- ☐ Reasonable potential for violating PT std or req't Which ones & why? _____

B. Does company own its bldg (is it listed as the owner in E-CIS)? Yes☒ No☐

If no: C. What is Bldg owner name (use DBA if avail.)? _____
(check E-CIS CAPS Customer Info)

D: What is Bldg owner mailing address? _____
(check E-CIS CAPS Customer Info)

37. DO MSD CLASSIFICATIONS NEED TO BE REVISED? Yes☐ No☒

If yes: A. Indicate correct classifications:

SIU ☐ Non-Significant CIU ☐ CIU ☐ Surcharge ☐ Non-Toxic Process Water/Wastes ☐
Toxics-Bearing Waste ☐ No Process Discharge ☐ Multi-User ☐ Special Handling/Billing ☐

B. Explain changes: _____

38. IS COMPANY CLASSIFIED AS "Multi-User"? Yes☐ No☒

If yes:
- A. Is company's discharge segregated from other tenants' discharge? Yes☐ No☐
- B. If no to A, does the company own the bldg/receive the MSD bills? Yes☐ No☐
- C. If yes to B, was company informed it is responsible for total discharge, or else must provide segregated sample points? Yes☐ No☐
- D. If no to B, are any Process/P&E Wash-type wastes discharged? Yes☐ No☐
- E. If yes to D, are the wastes completely innocuous? Yes☐ No☐
  (And explain why/why not: _____)
- F. If yes to D, and no to E, company must accept responsibility or provide segregated SP.
  Acceptance letter date: _____ Or write company with requirement ☐
- G. If no to D or yes to E, are limits "alert only" on PIMS? Yes☐ No☐
- H. Comments: _____

39. IS COMPANY CLASSIFIED AS "Special Handling/Billing"? Yes☒ No☐

If yes:
- A. Why? Billing is based upon the amount of leachate/storm/P+E wash discharged/hauled from the landfill;
- B. Are any changes needed to reasons/details? Yes☐ No☒
- C. If yes, explain: _____
- D. Were company records reviewed & verified for special handling/billing reports? NA☒ Yes☐ No☐

40. SAMPLE POINTS

SP #	013	Fed.Reg.		Components:	Leachate, P+E wash, stormwater, CT blowdown	Auto-sampler ready? Yes	DJ (y/n) No
SP #		Fed.Reg.		Components:		N/A	N/A
SP #		Fed.Reg.		Components:		N/A	N/A
SP #		Fed.Reg.		Components:		N/A	N/A
SP #		Fed.Reg.		Components:		N/A	N/A

41. ARE ANY SAMPLE POINTS TRAPPED VENTS? Yes☐ No☒

If yes: A. List SPs: _____

B. Was co. informed that T-vents are preferred, and told why? Yes☐ No☐

42. ARE DISCHARGES AT ANY SPs SMALL/IRREGULAR ENOUGH TO ALLOW GRAB SAMPLES? Yes☐ No☒

If yes: A. List SPs and reasons: _____

43. ARE THERE ANY UNSAMPLED DISCHARGES? (list each lateral separately) Yes☒ No☐

Dummy SP #		Components:	Sanitary from Simpson Asphalt is collected for hauling;
Dummy SP #		Components:	

If yes: A. Was company informed that SPs may be required in the future if the discharges change? Yes☒ No☐

B. Are all unsampled discharges very low flow and/or innocuous? Yes☒ No☐

C. If No to B, explain: Sanitary hauled;
(Must also write company and require installation of SP)

44. DO ANY SAMPLE POINTS (including Unsampled/Dummy SPs) RECEIVE STORMWATER? Yes☒ No☐

If yes: A. List Sample Points: Some percolation through cap;

45. WERE ALL SAMPLE POINTS (except Dummy SPs) OPENED & INSPECTED? No SPs☐ Yes☒ No☐

A. If any SPs cannot be located or opened, explain: _____

B. If any SP descript's need to be changed, explain: _____

C. Was ANY grease or other problem/debris observed in any SP? Yes☐ No☒

D. If yes to C, list SPs & describe: _____

E. If yes to C, was company directed to take corrective actions? Yes☐ No☐

46. REVIEW THE SAMPLE POINT MAP! Last map revision date: 1/22/15

A. Is the map correct and accurate in all its details? Yes☒ No☐

B If no, what changes are needed: _____

47. DO INSTRUCTIONS FOR "Contact Prior to Sampling" or FIELD VISIT "Special Instructions" NEED REVISION? Yes☐ No☒

If yes: A. List needed changes: Multiple instructions present; no changes;

USE THIS SPACE FOR ANY OTHER COMMENTS/OBSERVATIONS PERTINENT TO YOUR INSPECTION OF THIS SITE.

- The list of contacts has completely changed for both the landfill and CEC;
- They are discussing using one of the 1M gallon tanks as extra volume for equalization; if that happens, the 316K tank may be converted to an aeration tank for their sludge;
- Pretreatment is essentially the same as it was last year:
- RTO - Regnerative Thermal Oxidizer used to burn organic vapors produced in collection and pretreatment;
- Truck filling rack next to PT tankage is sunken for containment;
- All of the businesses that leased space at the base of the landfill have vacated except for Simpson Asphalt - sanitary collected for hauling;
- They have partially implemented their plan to reuse some of the processed water and have cut down on potable water use;
- My understanding of their current Pretreatment System:
-- Equalization, course screening, softening (ph adj), floccuation, calcium precip, aeration, clarification, activated sludge bio treatment, ultrafiltration, dewatering sludge; sodium nitrate for odor control in forcemain; anti-scale;
- On site contacts changes: 1) Erin Fanning, 2) Nick Bauer, 3) Ben Thompson

Limit Overrides:

pollutant_desc	limit	limit_override	unit	limit_basis
Acetone DYMX		1380	mg/L	Concentration
Acetone INST		1380	mg/L	Concentration
Arsenic (Total)	0.4	0.77	mg/L	Concentration
BOD (5 Day) DYMX		4300	#/day	Mass
BOD (5 Day) INST		4300	#/day	Mass
Gross Alpha DYMX		15	pci/L	Radioactivity

Gross Alpha	INST	15	pci/L	Radioactivity
Gross Beta	DYMX	50	pci/L	Radioactivity
Gross Beta	INST	50	pci/L	Radioactivity
Gross Gamma	DYMX	50	pci/L	Radioactivity
Gross Gamma	INST	50	pci/L	Radioactivity
Radium-226	DYMX	5	pci/L	Radioactivity
Radium-226	INST	5	pci/L	Radioactivity
Radium-226	DYMX	600	pci/L	Radioactivity
Radium-228	INST	5	pci/L	Radioactivity
Radium-228	DYMX	5	pci/L	Radioactivity
Radium-228	INST	600	pci/L	Radioactivity
Thorium-230	DYMX	15	pci/L	Radioactivity
Thorium-230	INST	15	pci/L	Radioactivity
Thorium-230	MNAV	1000	pci/L	Radioactivity
Total Suspended Solids	DYMX	100	mg/L	Concentration
Total Suspended Solids	INST	100	mg/L	Concentration
Transmittance Unfiltered	DYMX	65	%	N/A
Transmittance Unfiltered	INST	65	%	N/A
Uranium (Total)	DYMX	30	pci/L	Radioactivity
Uranium (Total)	INST	30	pci/L	Radioactivity
Uranium-natural	MNAV	3000	pci/L	Radioactivity

METROPOLITAN ST. LOUIS SEWER DISTRICT
INDUSTRIAL DATA SHEET - FACILITY INFORMATION

INDUSTRY NAME **BRIDGETON LANDFILL LLC**
PRIMARY MSD ACCOUNT NO. **1003803000**

Premise Address 13570 St. Charles Rock Road
Bridgeton MO. 63044

INDUSTRIAL USER CLASSIFICATIONS

03/06/1997	SIU
03/06/1997	TOX
01/19/2006	SPEC

WUNNENBERG INFO.

Base Map 1003
Wun:St. Louis City & Co.
Grid: W 09 Page 7

SIU CRITERIA

PR25 Process Disch => 25,000 GPD
POTM Reasonable potential for adverse effect on

GENERAL INFORMATION

Office Mailing Address
13570 St. Charles Rock Road
Bridgeton, MO. 63044

Billing Address
13570 St. Charles Rock Road
Bridgeton, MO. 63044

INSPECTION INFORMATION

Next Due	Insp Rslt	
05/18/2016	RIN	Tom Boehm

PERMIT INFORMATION

Issue Date:	09/01/2014
Expire Date:	08/31/2019
Extended Date:	02/05/2015
Writer	Doug Mendoza
Issue Date:	02/06/2015
Expire Date:	08/31/2019
Extended Date:	03/24/2015
Writer	Doug Mendoza
Issue Date:	03/25/2015
Expire Date:	08/31/2019
Extended Date:	
Writer	Doug Mendoza

IUQ INFORMATION

IUQ Recvd Date:	06/12/2000
Reviewer:	Fabian Grabski
IUQ Recvd Date:	06/06/2005
Reviewer:	Martin Blecha
IUQ Recvd Date:	05/30/2014
Reviewer:	Douglas Mendoza
IUQ Recvd Date:	08/25/2014
Reviewer:	Douglas Mendoza
IUQ Recvd Date:	04/27/2010
Reviewer:	Tom Boehm

CONTACTS

BILL	Erin Fanning	Environmental Manager	CELL	(618) 410-0157 Ext.
	Erin Fanning	Environmental Manager	OFF	(314) 744-8165 Ext.
FLD1	Erin Fanning	Environmental Manager	CELL	(209) 227-9531 Ext.
FLD2	Nick Bauer	Environmental Manager	CELL	(618) 420-5209 Ext.
FLD3	Ben Thompson	Plant Manager	OFF	(314) 656-4566 Ext.
	Ben Thompson	Plant Manager	CELL	(314) 707-4375 Ext.
OFF1	Erin Fanning	Environmental Manager	CELL	(209) 227-9531 Ext.
OFF2	Nick Bauer	Environmental Manager	CELL	(618) 420-5209 Ext.
OFF3	Ben Thompson	Plant Manager	CELL	(314) 707-4375 Ext.
	Ben Thompson	Plant Manager	OFF	(314) 656-4566 Ext.

OPERATIONAL INFORMATION

Work Days: 7

				S	M	T	W	T	F	S
1	16	06:00AM	12.0	Y	Y	Y	Y	Y	Y	Y
2	5	06:00PM	12.0	Y	Y	Y	Y	Y	Y	Y
3	0	00:00AM		N	N	N	N	N	N	N

Total Emp: 21 Hrs: 24.0

OTHER AGENCIES INFORMATION

11/28/1996	MDNR - Hazardous Waste Program	00925
06/29/1997	MDNR - Water Pollution Control Program	MO-0112771
06/30/1997	EPA - Hazardous Waste Program	MO-D980741805
09/28/2005	MSD - Billing Account Number	00039145

NON-SEWERED WASTE

On-Site Storage N On-Site Disposal N Off-Site Disposal Y

05/30/2014	Pretreatment Sludges		60000	tons
05/30/2014	Other	Sanitary waste	3084	GPD

COMMENTS

RAW MATERIALS

EFF DATE	MATERIAL_DESCRIPTION	QUANTITY	UNIT

SIC INFORMATION

SIC	DESCRIPTION
4953	Refuse Systems

PRODUCTS

EFF DATE	DESCRIPTION	UNIT	AVG_PROD	MAX_PROD
05/07/2004	Closed lanfill			

Report No. PIMS012A 05/19/2016 10:27:53 am
Data Date & Time: 05/19/2016 10:27:53 am

METROPOLITAN ST. LOUIS SEWER DISTRICT
INDUSTRIAL DATA SHEET - FACILITY INFORMATION

INDUSTRY NAME **BRIDGETON LANDFILL LLC**
PRIMARY MSD ACCOUNT NO. **1003803000**

Premise Address 13570 St. Charles Rock Road
Bridgeton MO. 63044

SEWER ACCOUNTS

Sewer Accounts
1003803000

WATER CONSUMPTION AND WASTEWATER DISCHARGE

Start Date = 01/01/2014 End Date = 12/31/2016 Wdays Cdays

Acct. No.			Consumption					Discharge	
1003803000			**CCF's**	**Gallons**				**Gal/ Wday**	**Gal/ Cday**
1003803000	12/21/2013	01/21/2014	668	668	A	32	32	32	
1003803000	01/22/2014	02/13/2014	124	792		23	23	55	
1003803000	02/14/2014	03/10/2014	114	906		25	25	80	
1003803000	03/11/2014	04/10/2014	126	1,032		31	31	111	
1003803000	04/11/2014	05/09/2014	117	1,149		29	29	140	
1003803000	05/10/2014	06/10/2014	125	1,274		32	32	172	
1003803000	06/11/2014	07/10/2014	112	1,386		30	30	202	
1003803000	07/11/2014	08/11/2014	125	1,511		32	32	234	
1003803000	08/12/2014	09/10/2014	2,145	3,656		30	30	264	
1003803000	09/11/2014	10/13/2014	3,295	6,951		33	33	297	
1003803000	10/14/2014	11/10/2014	4,431	11,382		28	28	325	
1003803000	11/11/2014	12/10/2014	4,101	15,483		30	30	355	
1003803000	12/11/2014	01/09/2015	5,243	20,726		30	30	385	
1003803000	01/10/2015	02/10/2015	5,119	25,845		32	32	417	
1003803000	02/11/2015	03/11/2015	4,342	30,187		29	29	446	
1003803000	03/12/2015	04/10/2015	5,129	35,316		30	30	476	
1003803000	04/11/2015	05/08/2015	6,038	41,354		28	28	504	
1003803000	05/09/2015	06/10/2015	10,520	51,874		33	33	537	
RF	1.00	**Acct. Total**	51,874	38,804,449		537	537	72,262	72,262
		Facility Total	51,874						

METROPOLITAN ST. LOUIS SEWER DISTRICT
INDUSTRIAL DATA SHEET - FACILITY INFORMATION

INDUSTRY NAME **BRIDGETON LANDFILL LLC**
PRIMARY MSD ACCOUNT NO. **1003803000**
Premise Address 13570 St. Charles Rock Road
Bridgeton MO. 63044

CONNECTION and SAMPLE POINT INFORMATION

LATERAL NO.	Lateral Type	DSMH	Treatment Area	Bissell Point
07	Sanitary Or Combined	14K3 089S	Trunk Sewer	91 - Maline Creek

Description Line from 97K final tank to junction MH (

Sewer Route 1-Bissell PS E on Boenker to Rock Rd PS,

SAMPLE POINT NO. 013 Ordinance **NPDES Outfall No.**

Description MH 15' NW, 27' SW of the N corner of concrete containment wall for effluent tank along Boenker Lane

Discharge Components	Process Description	Avg Flow	Unit	Max Flow	Unit	RUD	Effective Date
Plant & Equipment	Transfer station & jetter trucks	9,769	GPD		GPD	D	9/1/14
Storm Water	Contaminated from leachate spills	0	GPD		GPD	D	9/1/14
Landfill Leachate	Incl. underground thermal event & gas con	300,000	GPD		GPD	D	9/1/14
Cooling Tower Blo		5,000	GPD		GPD	D	9/1/14
	Total Flow Avg =	**314,769**		**Max =**			

CONNECTION and SAMPLE POINT INFORMATION

LATERAL NO.	Lateral Type	DSMH	Treatment Area	Bissell Point
08	Sanitary Or Combined		Trunk Sewer	01 - Hauled Waste Receiving Station

Description Truck loading station from 316K or 1 M g

Sewer Route

SAMPLE POINT NO. 014 Ordinance **NPDES Outfall No.**

Description Truck loading stations at 316K gallon equalization tank or 1 M gallon biological treatment tanks

Discharge Components	Process Description	Avg Flow	Unit	Max Flow	Unit	RUD	Effective Date
Plant & Equipment	Transfer station & jetter trucks	0	GPD	9,769	GPD	D	9/1/14
Landfill Leachate	Incl. underground thermal event & gas con	0	GPD	300,000	GPD	D	9/1/14
	Total Flow Avg =	**0**		**Max =**	**309,769**		

PRETREATMENT TYPES

SP	EFF DATE	TYPE	DESCRIPTION
013	06/05/2015	DC1	Aeration
013	09/01/2014	DC3	Biological Treatment
013	07/28/2015	DC7	Chemical Precipitation
013	06/05/2015	DC9	Clarification/Settling
013	09/01/2014	DC43	Ultrafiltration
013	09/01/2014	DC22	Equalization
013	09/01/2014	DC25	Flocculation
013	09/01/2014	DC33	Metals Precipitation
013	09/01/2014	DC37	pH Adjustment/Neutralization
013	05/18/2016	DC11	Coarse Screening

PRIORITY POLLUTANTS

Pollutant Description	Status	Pollutant Description	Status	Pollutant Description	Status
Antimony (Total)	KP	Selenium (Total)	KP	Copper (Total)	KP
Cadmium (Total)	KP	Zinc (Total)	KP	Nickel (Total)	KP
Mercury (Total)	KP	Lead (Total)	KP	Chromium (Total)	KP
Arsenic (Total)	KP	1,2,4-Trichlorobenzene	KP	Phenol	KP
Toluene	KP	Methylene Chloride	KP	Chlorobenzene	KP
Bromomethane	KP	Benzene	KP	PCB - 1242	KP
Naphthalene	KP	Hexachlorobutadiene	KP	1,2-Dichlorobenzene	KP
Ethylbenzene	KP	1,4-Dichlorobenzene	KP	1,1,2,2-Tetrachloroethane	KP

EXTRA STRENGTH SURCHARGE INFORMATION

PIMS FACILITY CONTACTS

For Account Number Selected **1003803000** **BRIDGETON LANDFILL LLC**
Located at 13570 St. Charles Rock Road
Bridgeton MO 63044

Address Type / Contact Type	Contact Name	Contact Title	Email	Signatory	Phone Type	Number	Ext.
Billing Address							
Billing Contact	Erin Fanning	Environmental Manager	efanning@republicservices.com	Y	CELL	(618)410-0157	
Billing Contact	Erin Fanning	Environmental Manager	efanning@republicservices.com	Y	OFF	(314)744-8165	
Office Mailing Address							
Office Contact - Primary	Erin Fanning	Environmental Manager	efanning@republicservices.com	Y	CELL	(209)227-9531	
Office Contact 1st Alt	Nick Bauer	Environmental Manager	nbauer@republicservices.com	Y	CELL	(618)420-5209	
Office Contact 2nd Alt	Ben Thompson	Plant Manager	bthompson@cecinc.com	N	CELL	(314)707-4375	
Office Contact 2nd Alt	Ben Thompson	Plant Manager	bthompson@cecinc.com	N	OFF	(314)656-4566	
Premise Address							
Field Contact - Primary	Erin Fanning	Environmental Manager	efanning@republicservices.com	Y	CELL	(209)227-9531	
Field Contact 1st Alt	Nick Bauer	Environmental Manager	nbauer@republicservices.com	Y	CELL	(618)420-5209	
Field Contact 2nd Alt	Ben Thompson	Plant Manager	bthompson@cecinc.com	N	CELL	(314)707-4375	
Field Contact 2nd Alt	Ben Thompson	Plant Manager	bthompson@cecinc.com	N	OFF	(314)656-4566	

MSD 033646

PIMS
REPORT OF FIELD SAMPLING REQUIREMENTS
BRIDGETON LANDFILL LLC

Account No Entered **1003803000**

SPN	PREMISE ADDRESS	CITY	ST	ZIP
	13570 St. Charles Rock Roa	Bridgeton	MO	63044

013 Project Code: IM= IPD - Company - MSD

Pollutant Group	Poll Code	Pollutant Description	Frequency	Sample Type	End Date
	T205000	Ammonia (as N)	Once/3 mo	Grab	06/30/2016
	T208000	Biochemical Oxygen Demand (5 Day)	Once/3 mo	Comp-Time 04 Hrs	06/30/2016
	T212000	Calcium (Total)	Once/3 mo	Comp-Time 04 Hrs	06/30/2016
	T213000	Chemical Oxygen Demand	Once/3 mo	Comp-Time 04 Hrs	06/30/2016
	T225000	Iron (Total)	Once/3 mo	Comp-Time 04 Hrs	06/30/2016
	T227000	Magnesium (Total)	Once/3 mo	Comp-Time 04 Hrs	06/30/2016
	T234000	Oil and Grease (Total)	Once/3 mo	Grab	06/30/2016
	T237000	pH	Once/3 mo	Grab	06/30/2016
	T247000	Temperature	Once/3 mo	Grab	06/30/2016
	T256000	Total Suspended Solids	Once/3 mo	Comp-Time 04 Hrs	06/30/2016
	T257000	Total Phenols	Once/3 mo	Grab	06/30/2016
	T306000	Arsenic (Total)	Once/3 mo	Comp-Time 04 Hrs	06/30/2016
	T309000	Benzene	Once/3 mo	Grab	06/30/2016
	T327000	Cadmium (Total)	Once/3 mo	Comp-Time 04 Hrs	06/30/2016
	T335000	Chromium (Total)	Once/3 mo	Comp-Time 04 Hrs	06/30/2016
	T339000	Copper (Total)	Once/3 mo	Comp-Time 04 Hrs	06/30/2016
	T368000	Lead (Total)	Once/3 mo	Comp-Time 04 Hrs	06/30/2016
	T370000	Mercury (Total)	Once/3 mo	Comp-Time 04 Hrs	06/30/2016
	T377000	Nickel (Total)	Once/3 mo	Comp-Time 04 Hrs	06/30/2016
	T393000	Silver (Total)	Once/3 mo	Comp-Time 04 Hrs	06/30/2016
	T403000	Zinc (Total)	Once/3 mo	Comp-Time 04 Hrs	06/30/2016
	T430000	Acetone	Once/3 mo	Grab	06/30/2016
	T433000	Methyl ethyl Ketone	Once/3 mo	Grab	06/30/2016
	T631000	Transmittance Unfiltered	Once/3 mo	Grab	06/30/2016
Phenolic Organics - Acids	T991000	Phenolic Organics - Acids	Once/3 mo	Grab	06/30/2016
Semi-Volatile Organics - Ba	T994000	Semi-Volatile Organics - Base/Neutrals	Once/3 mo	Comp-Time 04 Hrs	06/30/2016
Semi-Volatile Organics - Ac	T995000	Semi-Volatile Organics - Acids	Once/3 mo	Comp-Time 04 Hrs	06/30/2016
Volatile Organics	T996000	Volatile Orgs-not incl Acro/Acryl & 2-	Once/3 mo	Grab	06/30/2016
	T649000	Gross Alpha	Once/3 mo	Comp-Time 04 Hrs	09/29/2016
	T650000	Gross Beta	Once/3 mo	Comp-Time 04 Hrs	09/29/2016
	T651000	Gross Gamma	Once/3 mo	Comp-Time 04 Hrs	09/29/2016
	T652000	Radium-226	Once/3 mo	Comp-Time 04 Hrs	09/29/2016
	T653000	Radium-228	Once/3 mo	Comp-Time 04 Hrs	09/29/2016
	T654000	Uranium (Total)	Once/3 mo	Comp-Time 04 Hrs	09/29/2016
	T661000	Uranium-natural	Once/3 mo	Comp-Time 04 Hrs	09/29/2016
	T662000	Thorium-230	Once/3 mo	Comp-Time 04 Hrs	09/29/2016

014 Project Code: IM= IPD - Company - MSD

Pollutant Group	Poll Code	Pollutant Description	Frequency	Sample Type	End Date
	T205000	Ammonia (as N)	Once/3 mo	Grab	06/30/2016
	T208000	Biochemical Oxygen Demand (5 Day)	Once/3 mo	Comp-Time 04 Hrs	06/30/2016
	T212000	Calcium (Total)	Once/3 mo	Comp-Time 04 Hrs	06/30/2016
	T213000	Chemical Oxygen Demand	Once/3 mo	Comp-Time 04 Hrs	06/30/2016
	T225000	Iron (Total)	Once/3 mo	Comp-Time 04 Hrs	06/30/2016
	T227000	Magnesium (Total)	Once/3 mo	Comp-Time 04 Hrs	06/30/2016
	T234000	Oil and Grease (Total)	Once/3 mo	Grab	06/30/2016
	T237000	pH	Once/3 mo	Grab	06/30/2016
	T247000	Temperature	Once/3 mo	Grab	06/30/2016
	T256000	Total Suspended Solids	Once/3 mo	Comp-Time 04 Hrs	06/30/2016
	T257000	Total Phenols	Once/3 mo	Grab	06/30/2016
	T306000	Arsenic (Total)	Once/3 mo	Comp-Time 04 Hrs	06/30/2016
	T309000	Benzene	Once/3 mo	Grab	06/30/2016
	T327000	Cadmium (Total)	Once/3 mo	Comp-Time 04 Hrs	06/30/2016

Account No Entered **1003803000**

SPN	PREMISE ADDRESS		CITY	ST	ZIP	
	T335000	Chromium (Total)	Once/3 mo	Comp-Time 04 Hrs		06/30/2016
	T339000	Copper (Total)	Once/3 mo	Comp-Time 04 Hrs		06/30/2016
	T368000	Lead (Total)	Once/3 mo	Comp-Time 04 Hrs		06/30/2016
	T370000	Mercury (Total)	Once/3 mo	Comp-Time 04 Hrs		06/30/2016
	T377000	Nickel (Total)	Once/3 mo	Comp-Time 04 Hrs		06/30/2016
	T393000	Silver (Total)	Once/3 mo	Comp-Time 04 Hrs		06/30/2016
	T403000	Zinc (Total)	Once/3 mo	Comp-Time 04 Hrs		06/30/2016
	T430000	Acetone	Once/3 mo	Grab		06/30/2016
	T433000	Methyl ethyl Ketone	Once/3 mo	Grab		06/30/2016
Phenolic Organics - Acids	T991000	Phenolic Organics - Acids	Once/3 mo	Grab		06/30/2016
Semi-Volatile Organics - Ba	T994000	Semi-Volatile Organics - Base/Neutrals	Once/3 mo	Comp-Time 04 Hrs		06/30/2016
Semi-Volatile Organics - Ac	T995000	Semi-Volatile Organics - Acids	Once/3 mo	Comp-Time 04 Hrs		06/30/2016
Volatile Organics	T996000	Volatile Orgs-not incl Acro/Acryl & 2-	Once/3 mo	Grab		06/30/2016

TO: **File**

FROM: Angie McDonough amm

DATE: May 16, 2016

RE: **BRIDGETON LANDFILL LLC**
WASTEWATER USER CHARGE BILLING
ACCOUNT NUMBER 0039145-8

Pursuant to the MSD Industrial Wastewater Discharge Permit for the above referenced facility, this facility will be billed for the following charges for the indicated billing period:

DISCHARGE PERIOD: **April 2016**

BILLING IS FOR: **On- Site Special Discharge**

SAMPLE POINT: **013**

Billing Item	Quantity	Units	Rate	Charge
Volume SP013 4/1 - 4/7	2,636	CcF	$ 3.21 /CcF	$8,461.56
COD Extra-Strength Surcharge	2,390	mg/L	$316.19 /ton	$4,654.80
Volume SP013 4/8 - 4/30	6,029	CcF	$ 3.21 /CcF	$19,353.09
COD Extra-Strength Surcharge	1,690	mg/L	$316.19 /ton	$6,482.98
Volume Forcemain Flush	6	CcF	$ 3.21 /CcF	$19.26
Total	--	--	--	**$38,971.69**

If you have any questions, please call me at extension 8762.

bv

ec: Brian Gibson
Doug Mendoza
Bridgeton Republic Services

FILE: IU, Bridgeton Landfill LLC, 1003-8030-00

Doug Mendoza

Bridgeton Landfill
1003803000

From: Fanning, Erin <EFanning@republicservices.com>
Sent: Friday, May 13, 2016 12:21 PM
To: Doug Mendoza
Cc: Graves, Stephen; Kamp, Kevin; Power, Brian; Jonathan Wilkinson (jwilkinson@feezorengineering.com); Kevin O'Leary
Subject: Permit No. 1003803000-1 monthly volume discharge report
Attachments: April 2016 MSD Monthly Discharge Reporting.xlsx

Good afternoon Doug,

In accordance with Section II, Conditions D.2 and D.3 of Permit No. 1003803000-1, attached please find the April 2016 monthly volume of wastewater discharged from the Bridgeton pretreatment plant. Thank you very much for your time, have an amazing weekend, and please do not hesitate to contact me with any questions.

Kindest regards,

Erin Fanning
Environmental Manager

Bridgeton Landfill, LLC.
13570 Saint Charles Rock Road
Bridgeton, MO 63044
Cell: (209) 227-9531

Bridgeton Landfill Pretreatment Facility - Permit #1003803000 -1.2
Monthly Discharge Report

Date	**Discharge** Sample Point **013**	**Hauled** (gallons) Sample Point **014**	**Forcemain flush water**
4/1/2016	299015	0	0
4/2/2016	306414	0	0
4/3/2016	309564	0	0
4/4/2016	312157	0	0
4/5/2016	313957	0	0
4/6/2016	297720	0	0
4/7/2016	132606	0	4800
4/8/2016	312002	0	0
4/9/2016	284390	0	0
4/10/2016	144184	0	0
4/11/2016	142616	0	0
4/12/2016	140866	0	0
4/13/2016	139522	0	0
4/14/2016	238948	0	0
4/15/2016	301842	0	0
4/16/2016	303288	0	0
4/17/2016	304204	0	0
4/18/2016	211370	0	0
4/19/2016	144624	0	0
4/20/2016	150240	0	0
4/21/2016	147240	0	0
4/22/2016	161302	0	0
4/23/2016	159236	0	0
4/24/2016	159886	0	0
4/25/2016	73048	0	0
4/26/2016	59330	0	0
4/27/2016	144058	0	0
4/28/2016	197980	0	0
4/29/2016	273300	0	0
4/30/2016	316068	0	0

6,480,977

Comments:
Sample Point 013 is using an Emerson calibrated flow meter at the discharge location.
New meters were installed along with the upgrades to piping at the discharge. Those new meters will b

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

May 03, 2016

CB
5.5.16

Doug Mendoza
Metropolitan St. Louis Sewer District
10 Grand Avenue
Saint Louis, MO 63147

10038003006

RE: Project: Bridgeton Landfill
Pace Project No.: 30179643

Dear Doug Mendoza:
Enclosed are the analytical results for sample(s) received by the laboratory on April 13, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Carin A Ferris

Carin Ferris
carin.ferris@pacelabs.com
Project Manager

Enclosures

RECEIVED
MAY 03 2016
DIVISION OF
ENVIRONMENTAL COMPLIANCE

NELAP ACCREDITED TNI LABORATORY

REPORT OF LABORATORY ANALYSIS

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Pace Analytical
www.pacelabs.com

Pace Analytical Services, Inc.
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

CERTIFICATIONS

Project: Bridgeton Landfill
Pace Project No.: 30179643

Pennsylvania Certification IDs
1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
L-A-B DOD-ELAP Accreditation #: L2417
Georgia Certification #: C040
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH-0694
Delaware Certification
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: 90133
Louisiana DHH/TNI Certification #: LA140008
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: PA00091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
Nebraska Certification #: NE-05-29-14
Nevada Certification #: PA014572015-1
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188-14-8
Utah/TNI Certification #: PA014572015-5
USDA Soil Permit #: P330-14-00213
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Certification
Wyoming Certification #: 8TMS-L

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Greensburg, PA 15601
(724)850-5600

SAMPLE SUMMARY

Project: Bridgeton Landfill
Pace Project No.: 30179643

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30179643001	**Bridgeton Landfill**	Water	04/08/16 09:00	04/13/16 10:30

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SAMPLE ANALYTE COUNT

Project: Bridgeton Landfill
Pace Project No.: 30179643

Lab ID	Sample ID	Method	Analysts	Analytes Reported
30179643001	**Bridgeton Landfill**	EPA 900.0	NEG	2
		EPA 901.1	MAH	11
		EPA 903.1	WRR	1
		EPA 904.0	JLW	1
		ASTM D5174-97	RMK	1
		HSL-300	LAL	4

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Bridgeton Landfill
Pace Project No.: 30179643

Method: EPA 900.0
Description: 900.0 Gross Alpha/Beta
Client: Metropolitan St. Louis Sewer District
Date: May 03, 2016

General Information:
1 sample was analyzed for EPA 900.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Bridgeton Landfill
Pace Project No.: 30179643

Method: **EPA 901.1**
Description: 901.1 Gamma Spec
Client: Metropolitan St. Louis Sewer District
Date: May 03, 2016

General Information:
1 sample was analyzed for EPA 901.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Bridgeton Landfill
Pace Project No.: 30179643

Method: **EPA 903.1**
Description: 903.1 Radium 226
Client: Metropolitan St. Louis Sewer District
Date: May 03, 2016

General Information:
1 sample was analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Bridgeton Landfill
Pace Project No.: 30179643

Method: **EPA 904.0**
Description: 904.0 Radium 228
Client: Metropolitan St. Louis Sewer District
Date: May 03, 2016

General Information:
1 sample was analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Bridgeton Landfill
Pace Project No.: 30179643

Method: **ASTM D5174-97**
Description: D517497 Total Uranium KPA
Client: Metropolitan St. Louis Sewer District
Date: May 03, 2016

General Information:
1 sample was analyzed for ASTM D5174-97. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Bridgeton Landfill
Pace Project No.: 30179643

Method: **HSL-300**
Description: HSL300(AS) Actinides
Client: Metropolitan St. Louis Sewer District
Date: May 03, 2016

General Information:
1 sample was analyzed for HSL-300. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: RADC/29036

N2: The lab does not hold TNI accreditation for this parameter.

- BLANK (Lab ID: 1062070)
  - Thorium-230
  - Uranium-234
  - Uranium-235
  - Uranium-238
- Bridgeton Landfill (Lab ID: 30179643001)
  - Thorium-230
  - Uranium-234
  - Uranium-235
  - Uranium-238

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Bridgeton Landfill
Pace Project No.: 30179643

Sample: Bridgeton Landfill **Lab ID: 30179643001** Collected: 04/08/16 09:00 Received: 04/13/16 10:30 Matrix: Water
PWS: Site ID: Sample Type:

Comments: • Sample collection dates and times were not present on the sample containers.
• Upon receipt at the laboratory, 6 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0	**-3.36 ± 28.8 (56.6) C:NA T:NA**	pCi/L	04/27/16 20:10	12587-46-1	
Gross Beta	EPA 900.0	**142 ± 31.7 (25.3) C:NA T:NA**	pCi/L	04/27/16 20:10	12587-47-2	
Actinium-228	EPA 901.1	**10.540 ± 12.257 (14.660) C:NA T:NA**	pCi/L	05/02/16 14:29	14331-83-0	
Bismuth-212	EPA 901.1	**0.000 ± 10.389 (64.030) C:NA T:NA**	pCi/L	05/02/16 14:29	14913-49-6	
Bismuth-214	EPA 901.1	**35.091 ± 11.722 (9.042) C:NA T:NA**	pCi/L	05/02/16 14:29	14733-03-0	
Lead-212	EPA 901.1	**12.716 ± 15.583 (6.746) C:NA T:NA**	pCi/L	05/02/16 14:29	15092-94-1	
Lead-214	EPA 901.1	**40.281 ± 10.803 (9.318) C:NA T:NA**	pCi/L	05/02/16 14:29	15067-28-4	
Potassium-40	EPA 901.1	**278.700 ± 63.707 (41.140) C:NA T:NA**	pCi/L	05/02/16 14:29	13966-00-2	
Radium-226	EPA 901.1	**0.000 ± 77.924 (129.900) C:NA T:NA**	pCi/L	05/02/16 14:29	13982-63-3	
Radium-228	EPA 901.1	**10.540 ± 12.257 (14.660) C:NA T:NA**	pCi/L	05/02/16 14:29	15262-20-1	
Thallium-208	EPA 901.1	**0.000 ± 2.813 (5.920) C:NA T:NA**	pCi/L	05/02/16 14:29	14913-50-9	
Thorium-234	EPA 901.1	**39.191 ± 63.678 (529.800) C:NA T:NA**	pCi/L	05/02/16 14:29	15065-10-8	
Uranium-235	EPA 901.1	**11.371 ± 33.402 (41.630) C:NA T:NA**	pCi/L	05/02/16 14:29	15117-96-1	
Radium-226	EPA 903.1	**0.674 ± 1.58 (0.914) C:NA T:86%**	pCi/L	05/02/16 10:20	13982-63-3	
Radium-228	EPA 904.0	**1.61 ± 1.49 (3.05) C:75% T:83%**	pCi/L	05/02/16 12:08	15262-20-1	
Total Uranium	ASTM D5174-97	**0.279 ± 0.014 (0.193) C:NA T:NA**	ug/L	05/03/16 15:42	7440-61-1	
Thorium-230	HSL-300	**0.033 ± 0.152 (0.245) C:NA T:86%**	pCi/L	04/22/16 15:41	14269-63-7	N2
Uranium-234	HSL-300	**0.064 ± 0.379 (0.774) C:NA T:36%**	pCi/L	04/22/16 15:45	13966-29-5	N2
Uranium-235	HSL-300	**0.168 ± 0.385 (0.228) C:NA T:36%**	pCi/L	04/22/16 15:45	15117-96-1	N2
Uranium-238	HSL-300	**0.258 ± 0.296 (0.175) C:NA T:36%**	pCi/L	04/22/16 15:45		N2

Gross Gamma → 366.788

U-nat <0.774

REPORT OF LABORATORY ANALYSIS

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MSD 033662

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Bridgeton Landfill
Pace Project No.: 30179643

QC Batch: RADC/29102
QC Batch Method: EPA 900.0
Analysis Method: EPA 900.0
Analysis Description: 900.0 Gross Alpha/Beta
Associated Lab Samples: 30179643001

METHOD BLANK: 1064174
Matrix: Water
Associated Lab Samples: 30179643001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Gross Alpha	0.224 ± 0.625 (1.53) C:NA T:NA	pCi/L	04/27/16 09:06	
Gross Beta	-0.032 ± 0.685 (1.71) C:NA T:NA	pCi/L	04/27/16 09:06	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Bridgeton Landfill
Pace Project No.: 30179643

QC Batch: RADC/29211
QC Batch Method: EPA 901.1
Analysis Method: EPA 901.1
Analysis Description: 901.1 Gamma Spec
Associated Lab Samples: 30179643001

METHOD BLANK: 1068117
Matrix: Water
Associated Lab Samples: 30179643001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Actinium-228	0.000 ± 20.045 (45.880) C:NA T:NA	pCi/L	05/02/16 13:28	
Bismuth-212	0.000 ± 22.495 (162.000) C:NA T:NA	pCi/L	05/02/16 13:28	
Bismuth-214	0.000 ± 4.126 (29.150) C:NA T:NA	pCi/L	05/02/16 13:28	
Lead-212	3.055 ± 14.939 (18.440) C:NA T:NA	pCi/L	05/02/16 13:28	
Lead-214	0.000 ± 10.580 (21.770) C:NA T:NA	pCi/L	05/02/16 13:28	
Potassium-40	0.000 ± 48.006 (163.900) C:NA T:NA	pCi/L	05/02/16 13:28	
Radium-226	0.000 ± 124.940 (222.800) C:NA T:NA	pCi/L	05/02/16 13:28	
Radium-228	0.000 ± 20.045 (45.880) C:NA T:NA	pCi/L	05/02/16 13:28	
Thallium-208	0.000 ± 5.194 (11.740) C:NA T:NA	pCi/L	05/02/16 13:28	
Thorium-234	74.823 ± 178.850 (229.300) C:NA T:NA	pCi/L	05/02/16 13:28	
Uranium-235	0.000 ± 29.198 (66.630) C:NA T:NA	pCi/L	05/02/16 13:28	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Bridgeton Landfill
Pace Project No.: 30179643

QC Batch: RADC/29085 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 30179643001

METHOD BLANK: 1063308 Matrix: Water
Associated Lab Samples: 30179643001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.248 ± 0.339 (0.726) C:79% T:84%	pCi/L	04/29/16 11:33	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Bridgeton Landfill
Pace Project No.: 30179643

QC Batch: RADC/29036
QC Batch Method: HSL-300
Analysis Method: HSL-300
Analysis Description: HSL300(AS) Actinides
Associated Lab Samples: 30179643001

METHOD BLANK: 1062070
Matrix: Water
Associated Lab Samples: 30179643001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Thorium-230	0.000 ± 0.072 (0.052) C:NA T:75%	pCi/L	04/22/16 09:00	N2
Uranium-234	0.071 ± 0.049 (0.062) C:NA T:99%	pCi/L	04/22/16 15:45	N2
Uranium-235	0.007 ± 0.032 (0.052) C:NA T:99%	pCi/L	04/22/16 15:45	N2
Uranium-238	0.022 ± 0.026 (0.040) C:NA T:99%	pCi/L	04/22/16 15:45	N2

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Bridgeton Landfill
Pace Project No.: 30179643

QC Batch: RADC/29080 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 30179643001

METHOD BLANK: 1063303 Matrix: Water
Associated Lab Samples: 30179643001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.135 ± 0.309 (0.497) C:NA T:91%	pCi/L	05/02/16 10:06	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Bridgeton Landfill
Pace Project No.: 30179643

QC Batch: RADC/28990
QC Batch Method: ASTM D5174-97
Analysis Method: ASTM D5174-97
Analysis Description: D5174.97 Total Uranium KPA
Associated Lab Samples: 30179643001

METHOD BLANK: 1060628
Matrix: Water
Associated Lab Samples: 30179643001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Total Uranium	0.094 ± 0.003 (0.193) C:NA T:NA	ug/L	04/29/16 13:19	

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QUALIFIERS

Project: Bridgeton Landfill
Pace Project No.: 30179643

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval). Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

N2 The lab does not hold TNI accreditation for this parameter.

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CHAIN-OF-CUST

The Chain-of-Custody is a LE(

WO# : 30179643

Page: of

2007850

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: MSD	Report To: Mr. Doug Mendoza	Attention:
Address: 10 E. Grand St. Louis, MO 63147	Copy To:	Company Name:
Email To: dmendoza@stlmsd.com	Purchase Order No.:	Address:
Phone: 314-436-8717 Fax: 314-436-8752	Project Name:	Pace Quote Reference:
Requested Due Date/TAT:	Project Number:	Pace Project Manager:
		Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER

☐ UST ☐ RCRA ☒ OTHER Wastewater

Site Location STATE: ____

Section D Required Client Information

Matrix Codes — MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		Radium-226 Y/N; Radium-228 Y/N; Gross Alpha Y/N; Gross Beta Y/N; Uranium Natural Y/N; Thorium-230 Y/N; Uranium (Lab) Y/N; ** See Attachment		
1	Bridgeton Landfill	GT	C	4-7-16	1530	4-8-16	0900		5			X								001
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
		4-11-16	07:30	Alyssa R. Mahoney Pace	4/13/16	1060	NA	N	N	Y

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Joe Pavlich

SIGNATURE of SAMPLER: Joe Pavlich

DATE Signed (MM/DD/YY): 4-8-16

Temp In °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

MSD 033670

Brian G. Gibson

The particular radioactivity/radionuclides we need tested for each set are:

- Radium-226 (pci/L)
- Radium-228 (pci/L)
- Gross Alpha (pci/L)
- Gross Beta (pci/L)
- Gross Gamma (pci/L)
  - Consisting of
    - Actinium-228 (pci/L)
    - Bismuth-212 (pci/L)
    - Bismuth-214 (pci/L)
    - Lead-212 (pci/L)
    - Lead-214 (pci/L)
    - Potassium-40 (pci/L)
    - Radium-226 (pci/L)
    - Radium-228 (pci/L)
    - Thallium-208 (pci/L)
    - Thorium-234 (pci/L)
    - Uranium-235 (pci/L)
- Uranium-natural (pci/L)
  - Consisting of
    - Uranium-234 (pci/L)
    - Uranium-235 (pci/L)
    - Uranium-238 (pci/L)
  - I understand that you likely will simply analyze for the three isotopes, and MSD itself will sum them for the U-natural total
- **Thorium-230 (pci/L)**
  - **This is a new one we just added**
- Uranium, in concentration(ug/L)

Brian Gibson
Metropolitan St. Louis Sewer District
Division of Environmental Compliance
10 East Grand Avenue
St. Louis, MO 63147-2913
(314) 436-8784
bgibson@stlmsd.com

Sample Condition Upon Receipt

30179643

Pace Analytical

Client Name: MSD

Project #

Courier: ☐ Fed Ex ☑ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other

Tracking #: 1Z21V11R0396076261

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals Intact: ☐ yes ☐ no Biological Tissue is Frozen: Yes No

Packing Material: Bubble Wrap ✓ Bubble Bags ✓ Nons ___ Other ___

Thermometer Used N/A Type of Ice: Wet Blue (None) ☐ Samples on ice, cooling process has begun

Cooler Temp.: Observed Temp.: ___ °C Correction Factor: ___ °C Final Temp: ___ °C

Date and Initials of person examining contents: 4/18/16 ARM

Temp should be above freezing to 6°C

		Comments:
Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☐Yes ☑No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☐Yes ☑No ☐N/A	12. No date/time on bottles
-Includes date/time/ID/Analysis Matrix: WT		
All containers needing preservation have been checked.	☐Yes ☐No ☐N/A	13. Added 6mL HNO3 to each sample bottle pH<2. ARM. 4/14/16 0820
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes ☐No ☐N/A	
exceptions: VOA, coliform, TOC, O&G, Phenols	☐Yes ☐No	Initial when completed: ARM Lot # of added preservative: DL16-0328
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☑N/A	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: Date/Time:

Comments/ Resolution:

Project Manager Review: Carla Jones Date: 4/14/16

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

TO: **File**

FROM: Angie McDonough amm

DATE: April 29, 2016

RE: **BRIDGETON LANDFILL LLC**
WASTEWATER USER CHARGE BILLING
ACCOUNT NUMBER 0039145-8

Pursuant to the MSD Industrial Wastewater Discharge Permit for the above referenced facility, this facility will be billed for the following charges for the indicated billing period:

DISCHARGE PERIOD: **March 2016**

BILLING IS FOR: **On- Site Special Discharge and Hauled Waste**

SAMPLE POINT: **013 & 014**

Billing Item	Quantity	Units	Rate	Charge
Volume SP013 3/1 - 3/7	814	CcF	$ 3.21 /CcF	$2,612.94
COD Extra-Strength Surcharge	1,480	mg/L	$316.19 /ton	$706.66
Volume SP013 3/8 - 3/31	5,883	CcF	$ 3.21 /CcF	$18,884.43
COD Extra-Strength Surcharge	2,380	mg/L	$316.19 /ton	$10,330.51
Hauled Waste Volume	3,840	CcF	$ 0.020 /'gal	$57,446.40
Labor Fee				$8,437.38
Total	--	--	--	**$98,418.32**

If you have any questions, please call me at extension 8762.

bv

ec: Brian Gibson
Doug Mendoza
Bridgeton Republic Services

FILE: IU, Bridgeton Landfill LLC, 1003-8030-00

Engineering for a Better World
FEEZOR
ENGINEERING, INC.

April 26, 2016

Mr. Chris Bulmahn
Associate Engineer
Metropolitan St. Louis Sewer District
Division of Environmental Compliance
10 East Grand Avenue
St. Louis, MO 63147-2913

CB
5-5-16

RE: First Quarter 2016 Self-Monitoring Report
Bridgeton Landfill LLC, Bridgeton, Missouri
Discharge Permit No. 1003803000 - 1

Dear Mr. Bulmahn:

On behalf of Bridgeton Landfill, LLC, Feezor Engineering, Inc. (FEI) is submitting the Self-Monitoring Report for the First Quarter 2016 leachate sampling event at the Bridgeton Landfill.

As required by Permit No. 1003803000-1, the following composite samples were collected during the First Quarter 2016 monitoring period:

- On January 13, 2016, Civil and Environmental Consultants, Inc. (CEC) personnel collected composite samples of treated leachate from Bridgeton sampling point 013 for analysis of non-radionuclide constituents;
- On January 26 - 27, 2016, FEI personnel collected composite samples of treated leachate from Bridgeton Landfill sampling point 013 for analysis of radionuclide constituents;
- On February 16 – 17, 2016, FEI personnel collected composite samples of treated leachate from Bridgeton sampling point 014 for analysis of radionuclide constituents; and
- On March 9, 2016, CEC personnel collected composite samples of treated leachate from Bridgeton sampling point 014 for analysis of non-radionuclide constituents.

In accordance with a March 21, 2014 telephone conversation between Mr. Ed Galbraith of Barr Engineering Company (Barr) and the Missouri Department of Natural Resources (MDNR), additional composite samples were collected by FEI from sampling points 013 and 014 for analysis of Total Dissolved Solids (TDS) and Total Suspended Solids (TSS) concurrently with the collection of the composite samples for radioactive constituent analysis. TDS and TSS composite samples were analyzed by the Eberline Services facility located in Oak Ridge, Tennessee (Eberline).

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3405 Hollenberg Drive • Bridgeton, MO 63044

The analytical results of the sampling at points 013 and 014 indicate that the concentrations of analyzed constituents were within Permit-established limits.

Attachment 1 provides the MSD Industrial Self-Monitoring Report forms and Radioactive Material Discharge Report form for First Quarter 2016 monitoring event results for sampling locations 013 and 014.

Attachment 2 provides the laboratory analytical reports for non-radiological parameters reported from the samples collected from locations 013 and 014.

Attachment 3 provides portions of the laboratory analytical reports for radiological parameters reported from the samples collected from location 013 and 014. Pursuant to an April 11, 2016 telephone conversation between Mr. Doug Mendoza of Metropolitan St. Louis Sewer District (MSD) and Mr. Jonathan Wilkinson of FEI, the portions of the Eberline report to be included with quarterly self-monitoring reports are to consist of the laboratory case narrative, Chain of Custody (COC) information, and data summary tables. If requested, the facility will provide the Eberline analytical reports in their entirety.

Attachments 4 and 5 present the calculations used to determine the amount of radionuclide activity discharged and hauled, respectively, during the First Quarter 2016 monitoring period.

Attachment 6 presents monthly leachate volume records for the Bridgeton Landfill for January, February, and March 2016.

Selected results presented in the laboratory analytical reports have been qualified by Eberline. As stated in the laboratory analytical report case narrative provided in **Attachment 4** (Calculation of Discharged Activity):

For Gross Gamma:

> *Sample demonstrated acceptable results for all gamma-emitting radionuclides as reported. Results for "Gross Gamma" were derived from Potassium-40 since this is the only true positive gamma emitting radionuclide. In this case, there are no real positive gamma emitting radionuclides in these samples and most results are reported from the Canberra "non-identified" radionuclides report. The method blank demonstrated acceptable results for all radionuclides as reported.*

Additionally, as stated in the laboratory analytical report case narrative provided in **Attachment 5** (Calculation of Hauled Activity):

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For Gross Alpha:

In the case of this sample, Gross Alpha results are non-quantifiable and should be qualified as rejected (R).

For Gross Gamma:

Sample demonstrated acceptable results for Potassium-40 activity. All other gamma emitting radionuclides as reported are from the Canberra Gamma Apex "Nuclide MDA Report" and were not detected. All other (Gross Gamma) *results should be qualified as non-detect (U). Due to this condition, there is no correlation between Uranium and Thorium series radionuclides versus chemistry results for Radium-226, Isotopic Uranium and Radium-228. Results for "Gross Gamma" were derived from Potassium-40 since this is the only true positive gamma emitting radionuclide.*

The Gross Alpha and Gross Gamma results have been noted as qualified on the forms presented in **Attachment 1**.

If you have any questions regarding the information provided in this letter, please contact Erin Fanning, Environmental Manager at 209-227-9531, or the undersigned if you have any questions or comments.

Sincerely,

Jonathan E. Wilkinson, P.E.
Project Manager

Cc: Erin Fanning – Bridgeton Landfill
Mark Milward – St. Louis County Department of Health
Steve Graves – Civil & Environmental Consultants, Inc. (PDF via electronic mail)

Attachments:

Attachment 1 – MSD Industrial User Reporting Forms and Radioactive Material Discharge Report Form
Attachment 2 – Laboratory Analytical Reports for Non-Radiological Parameters Collected from Locations 013 and 014
Attachment 3 –Laboratory Analytical Reports for Radiological Parameters Collected from Locations 013 and 014
Attachment 4 – Calculation of Discharged Activity
Attachment 5 – Calculation of Hauled Activity
Attachment 6 – Monthly Leachate Volume Records

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METROPOLITAN ST. LOUIS SEWER DISTRICT
INDUSTRIAL USER SELF MONITORING REPORT

PART I: IDENTIFYING INFORMATION

Company Name: BRIDGETON LANDFILL LLC

Permit No: 1003803000 - 1 Effective Date: September 01, 2014 Expiration Date: August 31, 2019

Premise Address: 13570 St. Charles Rock Road, Bridgeton, MO 63044

Monitoring Period: ☑(JAN-MAR) ☐(APR-JUNE) ☐(JULY-SEPT) ☐(OCT-DEC)

Samples Collected By: N. Lafata/R. Jones

Analyses Performed By: Pace Analytical

PART II: ANALYTICAL RESULTS OF SELF MONITORING

MSD SAMPLE POINT REFERENCE NUMBERS ⇨		013						
DATES ON WHICH SAMPLES WERE COLLECTED ⇨		01/13/2016						
TIMES AT WHICH SAMPLES WERE COLLECTED ⇨		1300-2350						
PARAMETER	LIMIT	RECORD SAMPLE TYPES (G, C, M OR E) AND RESULTS BELOW (G=grab, C=composite, M=measured flow, E=estimated flow)						UNITS
Flow		M	205,270	M		M		GPD
Biochemical Oxygen Demand (5 Day)		C	116	C		C		mg/L
Chemical Oxygen Demand		C	1480	C		C		mg/L
Total Suspended Solids		C	66	C		C		mg/L
Temperature [Deg C]	60	G	26.4	G		G		°C
PH	11.5	G	8.48	G		G		SU
PH	5.5	G	7.43	G		G		SU
Transmittance Unfiltered		C *	15.7	C		C		mg/L
Ammonia (as N)		C	335	C		C		
Gross Alpha								
Gross Beta								
Gross Gamma								
Radium-226								pci/L
Radium-228								pci/L
Uranium (Total)								mg/L
Uranium-natural								pci/L
Arsenic (Total)	0.77	C	0.106	C		C		mg/L
Benzene	0.14	G	ND	G		G		mg/L
Cadmium (Total)	0.7	C	ND	C		C		mg/L

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* 15.7 Absorbance = 0% Transmittance CB

METROPOLITAN ST. LOUIS SEWER DISTRICT
INDUSTRIAL USER SELF MONITORING REPORT

PART I: IDENTIFYING INFORMATION

Company Name: BRIDGETON LANDFILL LLC

Permit No: 1003803000 - 1 Effective Date: September 01, 2014 Expiration Date: August 31, 2019

Premise Address: 13570 St. Charles Rock Road, Bridgeton, MO 63044

Monitoring Period: ☑(JAN-MAR) ☐(APR-JUNE) ☐(JULY-SEPT) ☐(OCT-DEC)

Samples Collected By: N. Lafata/R. Jones

Analyses Performed By: Pace Analytical

PART II: ANALYTICAL RESULTS OF SELF MONITORING

MSD SAMPLE POINT REFERENCE NUMBERS ⇨		013						
DATES ON WHICH SAMPLES WERE COLLECTED ⇨		01/13/2016						
TIMES AT WHICH SAMPLES WERE COLLECTED ⇨		1300-2350						
PARAMETER	LIMIT	RECORD SAMPLE TYPES (G, C, M OR E) AND RESULTS BELOW (G=grab, C=composite, M=measured flow, E=estimated flow)						UNITS
Chromium (Total) [mg/L]		C	0.0266					mg/L
Copper (Total) [mg/L]		C	ND					mg/L
Iron (Total) [mg/L]		C	0.728					mg/L
Lead (Total) [mg/L]		C	ND					mg/L
Magnesium (Total) [mg/L]		C	118					mg/L
Mercury (Total) [mg/L]		C	ND					mg/L
Nickel (Total) [mg/L]		C	0.0194					mg/L
Oil and Grease (Total) [mg/L]		G	ND					mg/L
Silver (Total) [mg/L]		C	ND					mg/L
Zinc (Total) [mg/L]		C	0.114					mg/L
Total Phenols [mg/L]		G	1.2404					mg/L
Total Toxic Organics [mg/L]		G	0.269					mg/L

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METROPOLITAN ST. LOUIS SEWER DISTRICT
INDUSTRIAL USER SELF MONITORING REPORT

PART I: IDENTIFYING INFORMATION

Company Name: BRIDGETON LANDFILL LLC

Permit No: 1003803000 - 1 Effective Date: September 01, 2014 Expiration Date: August 31, 2019

Premise Address: 13570 St. Charles Rock Road, Bridgeton, MO 63044

Monitoring Period: ☑(JAN-MAR) ☐(APR-JUNE) ☐(JULY-SEPT) ☐(OCT-DEC)

Samples Collected By: N. Lafata/R. Jones

Analyses Performed By: Pace Analytical

PART II: ANALYTICAL RESULTS OF SELF MONITORING

MSD SAMPLE POINT REFERENCE NUMBERS ⇨		014						
DATES ON WHICH SAMPLES WERE COLLECTED ⇨		03/09/2016						
TIMES AT WHICH SAMPLES WERE COLLECTED ⇨		0800-2300						
PARAMETER	LIMIT	RECORD SAMPLE TYPES (G, C, M OR E) AND RESULTS BELOW (G=grab, C=composite, M=measured flow, E=estimated flow)						UNITS
Flow (daily avg)		M	224,250	M		M		GPD
Biochemical Oxygen Demand (5 Day) (daily avg)		C	8.7	C		C		mg/L
Chemical Oxygen Demand (daily avg)		C	4610	C		C		mg/L
Total Suspended Solids (daily avg)		C	7110	C		C		mg/L
Temperature [Deg C] (daily avg)		G	32.2	G		G		°C
PH (daily avg)		G	7.6	G		G		SU
PH (daily avg)		G	8.9	G		G		SU
Ammonia (as N) (daily avg)		C	273	C		C		
Gross Alpha (daily avg)								
Gross Beta (daily avg)								
Gross Gamma (daily avg)								
Radium-226								pci/L
Radium-228								pci/L
Uranium (Total)								mg/L
Uranium-natural								pci/L
Arsenic (Total)		C	0.314	C		C		mg/L
Benzene	0.14	G	ND	G		G		mg/L
Cadmium (Total) (daily avg)		C	ND	C		C		mg/L
Chromium (Total) (daily avg)		C	0.0897	C		C		mg/L

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METROPOLITAN ST. LOUIS SEWER DISTRICT
INDUSTRIAL USER SELF MONITORING REPORT

PART I: IDENTIFYING INFORMATION

Company Name: BRIDGETON LANDFILL LLC

Permit No: 1003803000 - 1 Effective Date: September 01, 2014 Expiration Date: August 31, 2019

Premise Address: 13570 St. Charles Rock Road, Bridgeton, MO 63044

Monitoring Period: ☑(JAN-MAR) ☐(APR-JUNE) ☐(JULY-SEPT) ☐(OCT-DEC)

Samples Collected By: N. Lafata/R. Jones

Analyses Performed By: Pace Analytical

PART II: ANALYTICAL RESULTS OF SELF MONITORING

MSD SAMPLE POINT REFERENCE NUMBERS ⇨		014						
DATES ON WHICH SAMPLES WERE COLLECTED ⇨		03/09/2016						
TIMES AT WHICH SAMPLES WERE COLLECTED ⇨		0800-2300						
PARAMETER	LIMIT	RECORD SAMPLE TYPES (G, C, M OR E) AND RESULTS BELOW (G=grab, C=composite, M=measured flow, E=estimated flow)						UNITS
Copper (Total) [mg/L] (daily avg)		C	0.0143					mg/L
Iron (Total) [mg/L] (daily avg)		C	225					mg/L
Lead (Total) [mg/L] (daily avg)		C	0.0431					mg/L
Magnesium (Total) [mg/L] (daily avg)		C	145					mg/L
Mercury (Total) [mg/L] (daily avg)		C	0.0024					mg/L
Nickel (Total) [mg/L] (daily avg)		C	0.0467					mg/L
Oil and Grease (Total) [mg/L] (daily avg)		G	25.8					mg/L
Silver (Total) [mg/L] (daily avg)		C	ND					mg/L
Zinc (Total) [mg/L] (daily avg)		C	ND					mg/L
Total Phenols [mg/L]Total (daily avg)		G	ND					mg/L
Toxic Organics [mg/L] (daily avg)		G	ND					mg/L
								mg/L

You must complete and sign the certification statements on the second page.

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METROPOLITAN ST. LOUIS SEWER DISTRICT
INDUSTRIAL USER SELF MONITORING REPORT

PART I: IDENTIFYING INFORMATION

Company Name: BRIDGETON LANDFILL LLC

Permit No: **1003803000 – 1** Effective Date: **September 1, 2014** Expiration Date: **August 31, 2019**
Premise Address: 13570 St. Charles Rock Road

Monitoring Period: ☑ (JAN-MAR) ☐ (APR-JUNE) ☐ (JULY-SEPT) ☐ (OCT-DEC)

Samples Collected By: **Matt Stewart & Michael Spurgeon – Feezor Engineering, Inc.**

Analyses Performed By: **Eberline Services**

PART II: ANALYTICAL RESULTS OF SELF MONITORING

MSD SAMPLE POINT REFERENCE NUMBERS ⇨			014		013			
DATES ON WHICH SAMPLES WERE COLLECTED ⇨			2/17 - 2/18/2016		1/26 - 1/27/2016			
TIMES AT WHICH SAMPLES WERE COLLECTED ⇨			11:50, 16:00, 09:00, 12:10		12:49, 08:31, 16:31, 12:29			
PARAMETER	LIMIT	RECORD SAMPLE TYPES (G, C, M OR E) AND RESULTS BELOW (G=grab, C=composite, M=measured flow, E=estimated flow)						UNITS
Flow			313,101		228,130			GPD
Total Dissolved Solids	***	C	8,175	C	10,391			mg/L
Total Suspended Solids	***	C	65,265	C	2			mg/L
Gross Alpha	***	C	< MDA[1]	C	< MDA			pCi/L
Gross Beta	***	C	< MDA	C	220 ± 89			pCi/L
Gross Gamma	***	C	269 ± 62[2]	C	215 ± 52[3]			pCi/L
Radium – 226	600	C	< MDA	C	0.48 ± 0.39			pCi/L
Radium – 228	600	C	< MDA	C	< MDA			pCi/L
Uranium (Total)		C	< MDA	C	1.12 + 0.13			µg/L
Uranium (Natural)	3000	C	2.57	C	0.87			pCi/L

Notes:

[1] As stated by the laboratory, in the case of this sample, the primary sample Gross Alpha result was non-quantifiable and should be qualified as rejected (R). Presented result is laboratory duplicate result.

[2] Sample demonstrated acceptable results for Potassium-40 activity. All other gamma emitting radionuclides as reported are from the Canberra Gamma Apex "Nuclide MDA Report" and were not detected. All other *(Gross Gamma)* results should be qualified as non-detect (U). Due to this condition, there is no correlation between Uranium and Thorium series radionuclides versus chemistry results for Radium-226, Isotopic Uranium and Radium-228. Results for "Gross Gamma" were derived from Potassium-40 since this is the only true positive gamma emitting radionuclide.

[3] Sample demonstrated acceptable results for all gamma-emitting radionuclides as reported. Results for "Gross Gamma" were derived from Potassium-40 since this is the only true positive gamma emitting radionuclide. In this case, there are no real positive gamma emitting radionuclides in these samples and most results are reported from the Canberra "non-identified" radionuclides report. The method blank demonstrated acceptable results for all radionuclides as reported.

You must complete and sign the certification statements on the second page.

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PART III: SPECIAL CERTIFICATION STATEMENTS

Based on the special conditions contained in your discharge permit you may be required to certify the following. Please review your permit and **PLACE YOUR INITIALS ON THE LINES NEXT TO THE CERTIFICATIONS.**

O	NO DISCHARGE OF HAZARDOUS HAULED WASTE
	For permit special conditions that prohibit discharge of hazardous waste to the District, you are required to make the following certification: DPB I certify, since the last discharge monitoring report, there has been no discharge of hazardous waste to the District.

PART IV: GENERAL CERTIFICATION STATEMENTS

B	DISCHARGE MONITORING REPORT CERTIFICATION
	All permittees must sign and complete the information below: I certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. Print or type name of signing official: **Derek Bouchard** Title: **Environmental Specialist** Telephone: **314-302-3634** Signature: Derek Bouchard Date: 4/19/16

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METROPOLITAN ST. LOUIS SEWER DISTRICT
INDUSTRIAL USER RADIOACTIVE MATERIALS DISCHARGE REPORT

Part I: Identifying Information

Company Name: Bridgeton Landfill, LLC

Permit No.: 1003803000 - 1

Premise Address: 13570 St. Charles Rock Road, Bridgeton, MO 63044

Monitoring Period: ☑ (Jan-Mar) ☐ (Apr-Jun) ☐ (July-Sept) ☐ (Oct-Dec)

Part II: Record of Disposal of Radioactive Materials to the Sewer System

Radionuclide	Activity Discharged (Picocuries)
Gross Alpha	N/A
Gross Beta	1.41×10^{10}
Gross Gamma	1.84×10^{10}
Radium - 226	3.08×10^{7}
Radium - 228	N/A
Total Uranium (Uranium – 234 plus Uranium – 235 plus Uranium – 238)	9.89×10^{7}
Total Activity Discharged:	3.26×10^{10}

Notes:
N/A: Not applicable. Constituent below Minimum Detectable Activity.

Part III: Certification Statements

Place your initials in the box under item A.
Everyone must complete the information under items A & B and sign this report.

A. Certification of Compliance with Federal regulations

☒ I certify that to the best of my knowledge & belief, all requirements of 10 CFR Part 20, Appendix B, Table 3 governing disposal by release into sanitary sewage for material regulated by the Nuclear Regulatory Commission have been met for the period covered by this report.

B. Radioactive Materials Discharge Report Certification

I certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information submitted is , to the best of my knowledge and belief, true c, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Print or type name of signing official: Derek Bouchard

Title: Environmental Specialist

Telephone: 314-302-3634

Signature: Derek Bouchard

Date: 4/19/16

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Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: BRIDGETON PERMEATE 013
Pace Project No.: 60211257

Sample: LPTP-00 TRIP BLANK **Lab ID: 60211257001** Collected: 01/13/16 13:00 Received: 01/15/16 05:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
624 Volatile Organics	Analytical Method: EPA 624 Low							
Benzene	ND	ug/L	1.0	1		01/19/16 21:15	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	1		01/19/16 21:15	75-27-4	
Bromoform	ND	ug/L	1.0	1		01/19/16 21:15	75-25-2	
Bromomethane	ND	ug/L	5.0	1		01/19/16 21:15	74-83-9	
Carbon tetrachloride	ND	ug/L	1.0	1		01/19/16 21:15	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		01/19/16 21:15	108-90-7	
Chloroethane	ND	ug/L	1.0	1		01/19/16 21:15	75-00-3	
2-Chloroethylvinyl ether	ND	ug/L	10.0	1		01/19/16 21:15	110-75-8	c2
Chloroform	ND	ug/L	1.0	1		01/19/16 21:15	67-66-3	
Chloromethane	ND	ug/L	1.0	1		01/19/16 21:15	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	1		01/19/16 21:15	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		01/19/16 21:15	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		01/19/16 21:15	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		01/19/16 21:15	106-46-7	
1,1-Dichloroethane	ND	ug/L	1.0	1		01/19/16 21:15	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		01/19/16 21:15	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1		01/19/16 21:15	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		01/19/16 21:15	156-59-2	N2
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		01/19/16 21:15	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		01/19/16 21:15	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		01/19/16 21:15	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		01/19/16 21:15	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	1		01/19/16 21:15	100-41-4	
Methylene chloride	ND	ug/L	1.0	1		01/19/16 21:15	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		01/19/16 21:15	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		01/19/16 21:15	127-18-4	
Toluene	ND	ug/L	1.0	1		01/19/16 21:15	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		01/19/16 21:15	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		01/19/16 21:15	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		01/19/16 21:15	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		01/19/16 21:15	75-69-4	
Vinyl chloride	ND	ug/L	1.0	1		01/19/16 21:15	75-01-4	
Xylene (Total)	ND	ug/L	3.0	1		01/19/16 21:15	1330-20-7	N2
Surrogates								
4-Bromofluorobenzene (S)	100	%	87-112	1		01/19/16 21:15	460-00-4	
Toluene-d8 (S)	100	%	94-110	1		01/19/16 21:15	2037-26-5	
1,2-Dichloroethane-d4 (S)	106	%	84-112	1		01/19/16 21:15	17060-07-0	
Preservation pH	**6.0**		1.0	1		01/19/16 21:15		

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ANALYTICAL RESULTS

Project: BRIDGETON PERMEATE 013
Pace Project No.: 60211257

Sample: LPTP-P02,03,07,08,09-013 **Lab ID: 60211257002** Collected: 01/13/16 13:00 Received: 01/15/16 05:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
625 MSSV	Analytical Method: EPA 625 Preparation Method: EPA 625							
Acenaphthene	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	83-32-9	
Acenaphthylene	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	208-96-8	
Anthracene	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	120-12-7	
Benzidine	ND	ug/L	510	10	01/19/16 00:00	01/21/16 22:13	92-87-5	
Benzo(a)anthracene	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	56-55-3	
Benzo(a)pyrene	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	207-08-9	
4-Bromophenylphenyl ether	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	101-55-3	
Butylbenzylphthalate	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	85-68-7	
4-Chloro-3-methylphenol	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	59-50-7	
bis(2-Chloroethoxy)methane	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/L	61.2	10	01/19/16 00:00	01/21/16 22:13	111-44-4	
bis(2-Chloroisopropyl) ether	ND	ug/L	61.2	10	01/19/16 00:00	01/21/16 22:13	39638-32-9	
2-Chloronaphthalene	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	91-58-7	
2-Chlorophenol	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	7005-72-3	
Chrysene	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	53-70-3	
3,3'-Dichlorobenzidine	ND	ug/L	204	10	01/19/16 00:00	01/21/16 22:13	91-94-1	
2,4-Dichlorophenol	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	120-83-2	
Diethylphthalate	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	84-66-2	
2,4-Dimethylphenol	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	105-67-9	
Dimethylphthalate	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	131-11-3	
Di-n-butylphthalate	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/L	255	10	01/19/16 00:00	01/21/16 22:13	534-52-1	
2,4-Dinitrophenol	ND	ug/L	510	10	01/19/16 00:00	01/21/16 22:13	51-28-5	
2,4-Dinitrotoluene	ND	ug/L	61.2	10	01/19/16 00:00	01/21/16 22:13	121-14-2	
2,6-Dinitrotoluene	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	606-20-2	
Di-n-octylphthalate	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	117-84-0	
bis(2-Ethylhexyl)phthalate	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	117-81-7	
Fluoranthene	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	206-44-0	
Fluorene	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	87-68-3	
Hexachlorobenzene	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	118-74-1	
Hexachlorocyclopentadiene	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	77-47-4	
Hexachloroethane	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	193-39-5	
Isophorone	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	78-59-1	
Naphthalene	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	91-20-3	
Nitrobenzene	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	98-95-3	
2-Nitrophenol	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	88-75-5	
4-Nitrophenol	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	100-02-7	
N-Nitrosodimethylamine	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	62-75-9	
N-Nitroso-di-n-propylamine	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	621-64-7	
N-Nitrosodiphenylamine	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	86-30-6	

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ANALYTICAL RESULTS

Project: BRIDGETON PERMEATE 013
Pace Project No.: 60211257

Sample: LPTP-P02,03,07,08,09-013 **Lab ID: 60211257002** Collected: 01/13/16 13:00 Received: 01/15/16 05:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
625 MSSV	Analytical Method: EPA 625 Preparation Method: EPA 625							
Pentachlorophenol	**67.4**	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	87-86-5	
Phenanthrene	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	85-01-8	
Phenol	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	108-95-2	
Pyrene	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	129-00-0	
1,2,4-Trichlorobenzene	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	120-82-1	
2,4,6-Trichlorophenol	ND	ug/L	51.0	10	01/19/16 00:00	01/21/16 22:13	88-06-2	
Surrogates								
Nitrobenzene-d5 (S)	0	%	33-120	10	01/19/16 00:00	01/21/16 22:13	4165-60-0	D3,S4
2-Fluorobiphenyl (S)	0	%	39-120	10	01/19/16 00:00	01/21/16 22:13	321-60-8	S4
Terphenyl-d14 (S)	0	%	45-120	10	01/19/16 00:00	01/21/16 22:13	1718-51-0	S4
Phenol-d6 (S)	0	%	11-120	10	01/19/16 00:00	01/21/16 22:13	13127-88-3	S4
2-Fluorophenol (S)	0	%	17-120	10	01/19/16 00:00	01/21/16 22:13	367-12-4	S4
2,4,6-Tribromophenol (S)	0	%	39-120	10	01/19/16 00:00	01/21/16 22:13	118-79-6	S4
624 Volatile Organics	Analytical Method: EPA 624 Low							
Benzene	ND	ug/L	5.0	5		01/19/16 21:29	71-43-2	
Bromodichloromethane	ND	ug/L	5.0	5		01/19/16 21:29	75-27-4	
Bromoform	ND	ug/L	5.0	5		01/19/16 21:29	75-25-2	
Bromomethane	ND	ug/L	25.0	5		01/19/16 21:29	74-83-9	
Carbon tetrachloride	ND	ug/L	5.0	5		01/19/16 21:29	56-23-5	
Chlorobenzene	ND	ug/L	5.0	5		01/19/16 21:29	108-90-7	
Chloroethane	ND	ug/L	5.0	5		01/19/16 21:29	75-00-3	
2-Chloroethylvinyl ether	ND	ug/L	50.0	5		01/19/16 21:29	110-75-8	M1,c2
Chloroform	ND	ug/L	5.0	5		01/19/16 21:29	67-66-3	
Chloromethane	ND	ug/L	5.0	5		01/19/16 21:29	74-87-3	
Dibromochloromethane	ND	ug/L	5.0	5		01/19/16 21:29	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	5.0	5		01/19/16 21:29	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	5.0	5		01/19/16 21:29	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	5.0	5		01/19/16 21:29	106-46-7	
1,1-Dichloroethane	ND	ug/L	5.0	5		01/19/16 21:29	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	5		01/19/16 21:29	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	5		01/19/16 21:29	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	5.0	5		01/19/16 21:29	156-59-2	N2
trans-1,2-Dichloroethene	ND	ug/L	5.0	5		01/19/16 21:29	156-60-5	
1,2-Dichloropropane	ND	ug/L	5.0	5		01/19/16 21:29	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	5.0	5		01/19/16 21:29	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	5.0	5		01/19/16 21:29	10061-02-6	
Ethylbenzene	ND	ug/L	5.0	5		01/19/16 21:29	100-41-4	
Methylene chloride	ND	ug/L	5.0	5		01/19/16 21:29	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	5		01/19/16 21:29	79-34-5	
Tetrachloroethene	ND	ug/L	5.0	5		01/19/16 21:29	127-18-4	
Toluene	ND	ug/L	5.0	5		01/19/16 21:29	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	5.0	5		01/19/16 21:29	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	5		01/19/16 21:29	79-00-5	
Trichloroethene	ND	ug/L	5.0	5		01/19/16 21:29	79-01-6	
Trichlorofluoromethane	ND	ug/L	5.0	5		01/19/16 21:29	75-69-4	
Vinyl chloride	ND	ug/L	5.0	5		01/19/16 21:29	75-01-4	

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ANALYTICAL RESULTS

Project: BRIDGETON PERMEATE 013
Pace Project No.: 60211257

Sample: LPTP-P02,03,07,08,09-013 **Lab ID: 60211257002** Collected: 01/13/16 13:00 Received: 01/15/16 05:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
624 Volatile Organics	Analytical Method: EPA 624 Low							
Xylene (Total)	ND	ug/L	15.0	5		01/19/16 21:29	1330-20-7	N2
Surrogates								
4-Bromofluorobenzene (S)	100	%	87-112	5		01/19/16 21:29	460-00-4	
Toluene-d8 (S)	98	%	94-110	5		01/19/16 21:29	2037-26-5	
1,2-Dichloroethane-d4 (S)	112	%	84-112	5		01/19/16 21:29	17060-07-0	
Preservation pH	**6.0**		1.0	5		01/19/16 21:29		
HEM, Oil and Grease	Analytical Method: EPA 1664A							
Oil and Grease	ND	mg/L	5.0	1		01/28/16 09:02		
Phenolics, Total Recoverable	Analytical Method: EPA 420.1							
Phenolics, Total Recoverable	ND	mg/L	0.050	1		01/23/16 12:19		
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E							
Cyanide	**0.012**	mg/L	0.0050	1		01/17/16 13:26	57-12-5	

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ANALYTICAL RESULTS

Project: BRIDGETON PERMEATE 013
Pace Project No.: 60211257

Sample: LPTP-P04,05,06-014 **Lab ID: 60211257003** Collected: 01/13/16 23:50 Received: 01/15/16 05:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Antimony	**10.8**	ug/L	10.0	1	01/18/16 09:35	01/19/16 18:11	7440-36-0	
Arsenic	**106**	ug/L	10.0	1	01/18/16 09:35	01/19/16 18:11	7440-38-2	
Beryllium	ND	ug/L	1.0	1	01/18/16 09:35	01/19/16 18:11	7440-41-7	
Cadmium	ND	ug/L	5.0	1	01/18/16 09:35	01/19/16 18:11	7440-43-9	
Chromium	**26.6**	ug/L	5.0	1	01/18/16 09:35	01/19/16 18:11	7440-47-3	
Copper	ND	ug/L	10.0	1	01/18/16 09:35	01/19/16 18:11	7440-50-8	
Iron	**728**	ug/L	50.0	1	01/18/16 09:35	01/19/16 18:11	7439-89-6	
Lead	ND	ug/L	5.0	1	01/18/16 09:35	01/19/16 18:11	7439-92-1	
Magnesium	**118000**	ug/L	50.0	1	01/18/16 09:35	01/19/16 18:11	7439-95-4	
Nickel	**19.4**	ug/L	5.0	1	01/18/16 09:35	01/19/16 18:11	7440-02-0	
Selenium	ND	ug/L	15.0	1	01/18/16 09:35	01/19/16 18:11	7782-49-2	
Silver	ND	ug/L	7.0	1	01/18/16 09:35	01/19/16 18:11	7440-22-4	
Thallium	ND	ug/L	20.0	1	01/18/16 09:35	01/19/16 18:11	7440-28-0	
Zinc	**114**	ug/L	50.0	1	01/18/16 09:35	01/19/16 18:11	7440-66-6	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	ND	ug/L	0.20	1	01/19/16 15:00	01/20/16 11:03	7439-97-6	
2540D Total Suspended Solids	Analytical Method: SM 2540D							
Total Suspended Solids	**66.0**	mg/L	5.0	1		01/18/16 12:16		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**8.3**	Std. Units	0.10	1		01/18/16 08:45		H6
5210B BOD, 5 day	Analytical Method: SM 5210B Preparation Method: SM 5210B							
BOD, 5 day	**116**	mg/L	2.0	1	01/15/16 14:09	01/20/16 12:00		1e
350.1 Ammonia	Analytical Method: EPA 350.1							
Nitrogen, Ammonia	**335**	mg/L	10.0	100		01/20/16 09:08	7664-41-7	
410.4 COD	Analytical Method: EPA 410.4							
Chemical Oxygen Demand	**1480**	mg/L	200	20		01/20/16 15:25		

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QUALITY CONTROL DATA

Project: BRIDGETON PERMEATE 013
Pace Project No.: 60211257

QC Batch: MERP/10268
QC Batch Method: EPA 245.1
Analysis Method: EPA 245.1
Analysis Description: 245.1 Mercury
Associated Lab Samples: 60211257003

METHOD BLANK: 1699249 Matrix: Water
Associated Lab Samples: 60211257003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	ND	0.20	01/20/16 10:05	

LABORATORY CONTROL SAMPLE: 1699250

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	4.6	93	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1699251 1699252

Parameter	Units	60211079002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	0.00023 mg/L	5	5	4.7	4.6	89	87	70-130	2	20	

MATRIX SPIKE SAMPLE: 1699253

Parameter	Units	60211095002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	ND	5	4.2	84	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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WO# : 60211257

60211257

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Proj Name:

Client Name: Republic Service

Courier: FedEx ☐ UPS ☐ VIA ☐ Clay ☐ PEX ☐ ECI ☐ Pace ☐ Other ☒ xroad Client ☐

Tracking #: _____ Pace Shipping Label Used? Yes ☐ No ☒

Custody Seal on Cooler/Box Present: Yes ☒ No ☐ Seals intact: Yes ☐ No ☐

Packing Material: Bubble Wrap ☐ Bubble Bags ☒ Foam ☒ None ☐ Other ☐

Thermometer Used: CF +0.8 T-239 / CF +0.7 T-262 **Type of Ice:** (Wet) Blue None ☐ Samples received on ice, cooling process has begun.
(circle one)

Cooler Temperature: 2-2

Date and Initials of person examining contents: PM 4/15/16

Temperature should be above freezing to 6°C

Chain of Custody present:	☒Yes ☐No ☐N/A	1.
Chain of Custody filled out:	☒Yes ☐No ☐N/A	2.
Chain of Custody relinquished:	☒Yes ☐No ☐N/A	3.
Sampler name & signature on COC:	☒Yes ☐No ☐N/A	4.
Samples arrived within holding time:	☒Yes ☐No ☐N/A	5.
Short Hold Time analyses (<72hr):	☒Yes ☐No ☐N/A	6. BOD pH
Rush Turn Around Time requested:	☐Yes ☒No ☐N/A	7.
Sufficient volume:	☒Yes ☐No ☐N/A	8.
Correct containers used:	☒Yes ☐No ☐N/A	
Pace containers used:	☒Yes ☐No ☐N/A	9.
Containers intact:	☒Yes ☐No ☐N/A	10.
Unpreserved 5035A soils frozen w/in 48hrs?	☐Yes ☐No ☒N/A	11.
Filtered volume received for dissolved tests?	☐Yes ☐No ☒N/A	12.
Sample labels match COC:	☒Yes ☐No ☐N/A	
Includes date/time/ID/analyses Matrix: WT		13.
All containers needing preservation have been checked.	☒Yes ☐No ☐N/A	LPTP-poz AG3S pH is 6.0 added 2.5 mL of HNO3 to LPTP-poz BRN. pH 6.0/2.0
All containers needing preservation are found to be in compliance with EPA recommendation.	☒Yes ☒No ☐N/A	14.
Exceptions: VOA, Coliform, (O&G) WI-DRO (water)	☒Yes ☐No	Initial when completed: pv Lot # of added preservative: 12489-23-3
Trip Blank present:	☒Yes ☐No ☐N/A	
Pace Trip Blank lot # (if purchased): 101215-3		15.
Headspace in VOA vials (>6mm):	☐Yes ☒No ☐N/A	16.
Project sampled in USDA Regulated Area:	☐Yes ☐No ☒N/A	17. List State: WI
Additional labels attached to 5035A vials in the field?	☐Yes ☐No ☒N/A	18.

Client Notification/ Resolution: Copy COC to Client? Y / (N) Field Data Required? Y / (N)

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: 4/15/16

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Page: 1 of 1

Section A Required Client Information:

Company:	Republic Services
Address:	13570 St. Charles Rock Rd
	Bridgeton, MO 63044
Email To:	dbouchard@republicservices.com
Phone: 314-302-3634	Fax:
Requested Due Date/TAT:	

Section B Required Project Information:

Report To:	Derek Bouchard
Copy To:	Kevin Kamp (kkamp@cecinc.com)
	Natalie Lafata/CEC, Barr validation group
Purchase Order No.:	
Project Name:	BRIDGETON PERMEATE 013
Project Number:	

Section C Invoice Information:

Attention:	AMY HARGROVE
Company Name:	REPUBLIC SERVICES
Address:	BRIDGETON, MO 63044
Pace Quote Reference:	
Pace Project Manager:	Angie Brown 913-563-1402
Pace Profile #:	7979

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☑ OTHER

Site Location STATE: MO

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other
1	LPTP-00 TRIP BLANK	WT	G						2	2							
2	LPTP-P02,03,07,08,09-013	WT	G	—	—	1/13/16	1300		12	8	1		2	1	1AHT		
3	LPTP-P04,05,06-013	WT	C	1/13/16	1300	1/13/16	2350		3	1	1	1					
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	

Requested Analysis Filtered (Y/N)

Analysis Test	Y/N	AMMONIA, COD	BOD, TSS, pH	Oil/Grease	Total Phenol	Fe, Mg EPA 200.7	200.7/245 TTO(*)	624 TTO	625 TTO	Cyanide TTO	Residual Chlorine (Y/N)
1		2	0					X			0
2				X	X	2		X	X	X	3
3		X	X			X	X				

Pace Project No./ Lab I.D. 6021257

(*) TTO metals: Sb, As, Be, Cd Cr, Cu, Pb, Hg, Ni, Se, Ag, Tl, Zn

SAMPLING POINT REF 013

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
		1/14/16	1200		1/14/16	
					1/15/16	0500

SAMPLE CONDITIONS	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	2.2	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Natalie Lafata / R Tano

SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY): 1/14/2016

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.08, 12-Oct-2007

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9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: BRIDGETON LPTP 013
Pace Project No.: 60211209

Sample: MH013-UVT **Lab ID: 60211209001** Collected: 01/13/16 13:30 Received: 01/14/16 11:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
UV254	Analytical Method: SM 5910							
U254 UV Absorbing Organic	**15.7**	cm-1	0.40	100		01/14/16 16:29		
U254 UV Absorbing Organic Dup	**15.7**	cm-1	0.40	100		01/14/16 16:29		

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QUALITY CONTROL DATA

Project: BRIDGETON LPTP 013
Pace Project No.: 60211209

QC Batch: WET/35210
QC Batch Method: SM 5910
Analysis Method: SM 5910
Analysis Description: UV254 UV Absorbing Organics
Associated Lab Samples: 60211209001

METHOD BLANK: 1447192 Matrix: Water
Associated Lab Samples:

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
U254 UV Absorbing Organic	cm-1	<0.0030	0.0040	01/14/16 10:27	
U254 UV Absorbing Organic Dup	cm-1	<0.0030	0.0040	01/14/16 10:27	

LABORATORY CONTROL SAMPLE: 1447193

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
U254 UV Absorbing Organic	cm-1	.009	0.0071	79	75-125	
U254 UV Absorbing Organic Dup	cm-1	.009	0.0072	80	75-125	

SAMPLE DUPLICATE: 1447194

Parameter	Units	35224620001 Result	Dup Result	RPD	Max RPD	Qualifiers
U254 UV Absorbing Organic	cm-1	0.046	0.046	1	20	P4
U254 UV Absorbing Organic Dup	cm-1	0.046	0.046	1	20	P4

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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Page: 1 of 1 — Page 9 of 11

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Republic Services	Report To:	Derek Bouchard	Attention:	AMY HARGROVE
Address:	13570 St. Charles Rock Rd	Copy To:	Kevin Kamp (kkamp@cecinc.com)	Company Name:	REPUBLIC SERVICES
	Bridgeton, MO 63044		Natalie Lafata/CEC, Barr validation group	Address:	BRIDGETON, MO 63044
Email To:	dbouchard@republicservices.com	Purchase Order No.:		Pace Quote Reference:	
Phone:	314-302-3634 Fax:	Project Name:	BRIDGETON LPTP 013	Pace Project Manager:	Angie Brown 913-563-1402
Requested Due Date/TAT:		Project Number:		Pace Profile #:	7979

REGULATORY AGENCY: ☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☑ OTHER

Site Location STATE: MO

Requested Analysis Filtered (Y/N)

ITEM #	Section D Required Client Information — SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE	Valid Matrix Codes: MATRIX / CODE — DRINKING WATER DW; WATER WT; WASTE WATER WW; PRODUCT P; SOIL/SOLID SL; OIL OL; WIPE WP; AIR AR; OTHER OT; TISSUE TS	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N)	UV 254	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MH013-UVT		WT				1-13-16	1330		1	1									X		DIRECT SHIP TO
2																						PACE FLORIDA
3																						
4																						
5																						
6																						SAMPLING POINT REF 013
7																						
8																						
9																						
10																						
11																						
12																						

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	[signature]	1-13-16	1420	FEDEX T-223	1/14/16	1105	5.3	C	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Natalie Lafata

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 1-13-16

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.08, 12-Oct-2007

Chain of Custody

WO# : 35224885

35224885

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Workorder: 60211209 **Workorder Name:** BRIDGETON LPTP 013 **Owner Received Date:** 1/14/2016 **Results Requested By:** 1/28/2016

Report To	Subcontract To
Angie Brown Pace Analytical Services, Inc. 9608 Loiret Blvd. Lenexa, KS 66219 Phone (913)599-5665 Fax (913)599-1759	Pace Analytical Ormond Beach 8 East Tower Circle Ormond Beach, FL 32174 Phone (386)672-5668

Item	Sample ID	Sample Type	Collect Date/Tim	Lab ID	Matrix	Preserved Containers	Requested Analysis: UV-2540	LAB USE ONLY
1	MH013-UVT	PS	1/13/2016 13:30	60211209001	Water	1	X	
2								
3								
4								
5								

Transfers	Released By	Date/Time	Received By	Date/Time
1			T-223	1/14/16 1105
2				
3				

Comments:

Cooler Temperature on Receipt 5.3 °C | Custody Seal (Y) or | Received on Ice (Y) or | Samples Intact (Y) or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: BRIDGETON LPTP 014 QTR
Pace Project No.: 60214687

Lab ID	Sample ID	Method	Analysts	Analytes Reported
60214687001	LPTP-00 TRIP BLANK	EPA 624 Low	EAG	37
60214687002	LPTP-P02,02,07,08,09-014	EPA 625	JMT	59
		EPA 624 Low	EAG	37
		EPA 1664A	JMC1	1
		EPA 420.1	OL	1
		SM 4500-CN-E	OL	1
60214687003	LPTP-P04,05,06-14	EPA 200.7	ZBM	14
		EPA 245.1	TDS	1
		SM 2540D	CRS	1
		SM 4500-H+B	JMC1	1
		SM 5210B	LJS	1
		EPA 350.1	AJM	1
		EPA 410.4	LDB	1

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ANALYTICAL RESULTS

Project: BRIDGETON LPTP 014 QTR
Pace Project No.: 60214687

Sample: LPTP-00 TRIP BLANK **Lab ID: 60214687001** Collected: 03/09/16 08:00 Received: 03/11/16 03:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
624 Volatile Organics	Analytical Method: EPA 624 Low							
Benzene	ND	ug/L	1.0	1		03/15/16 07:13	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	1		03/15/16 07:13	75-27-4	
Bromoform	ND	ug/L	1.0	1		03/15/16 07:13	75-25-2	
Bromomethane	ND	ug/L	5.0	1		03/15/16 07:13	74-83-9	
Carbon tetrachloride	ND	ug/L	1.0	1		03/15/16 07:13	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		03/15/16 07:13	108-90-7	
Chloroethane	ND	ug/L	1.0	1		03/15/16 07:13	75-00-3	
2-Chloroethylvinyl ether	ND	ug/L	10.0	1		03/15/16 07:13	110-75-8	c2
Chloroform	ND	ug/L	1.0	1		03/15/16 07:13	67-66-3	
Chloromethane	ND	ug/L	1.0	1		03/15/16 07:13	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	1		03/15/16 07:13	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		03/15/16 07:13	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		03/15/16 07:13	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		03/15/16 07:13	106-46-7	
1,1-Dichloroethane	ND	ug/L	1.0	1		03/15/16 07:13	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		03/15/16 07:13	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1		03/15/16 07:13	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		03/15/16 07:13	156-59-2	N2
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		03/15/16 07:13	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		03/15/16 07:13	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		03/15/16 07:13	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		03/15/16 07:13	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	1		03/15/16 07:13	100-41-4	
Methylene chloride	ND	ug/L	1.0	1		03/15/16 07:13	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		03/15/16 07:13	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		03/15/16 07:13	127-18-4	
Toluene	ND	ug/L	1.0	1		03/15/16 07:13	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		03/15/16 07:13	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		03/15/16 07:13	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		03/15/16 07:13	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		03/15/16 07:13	75-69-4	
Vinyl chloride	ND	ug/L	1.0	1		03/15/16 07:13	75-01-4	
Xylene (Total)	ND	ug/L	3.0	1		03/15/16 07:13	1330-20-7	N2
Surrogates								
4-Bromofluorobenzene (S)	101	%	87-112	1		03/15/16 07:13	460-00-4	
Toluene-d8 (S)	100	%	94-110	1		03/15/16 07:13	2037-26-5	
1,2-Dichloroethane-d4 (S)	102	%	84-112	1		03/15/16 07:13	17060-07-0	
Preservation pH	**7.0**		1.0	1		03/15/16 07:13		

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(913)599-5665

ANALYTICAL RESULTS

Project: BRIDGETON LPTP 014 QTR
Pace Project No.: 60214687

Sample: LPTP-P02,02,07,08,09-014 **Lab ID: 60214687002** Collected: 03/09/16 07:30 Received: 03/11/16 03:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
625 MSSV	Analytical Method: EPA 625 Preparation Method: EPA 625							
Acenaphthene	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	83-32-9	
Acenaphthylene	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	208-96-8	
Anthracene	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	120-12-7	
Benzidine	ND	ug/L	200	1	03/15/16 00:00	03/21/16 13:25	92-87-5	
Benzo(a)anthracene	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	56-55-3	
Benzo(a)pyrene	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	207-08-9	
4-Bromophenylphenyl ether	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	101-55-3	
Butylbenzylphthalate	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	85-68-7	
4-Chloro-3-methylphenol	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	59-50-7	
bis(2-Chloroethoxy)methane	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/L	24.0	1	03/15/16 00:00	03/21/16 13:25	111-44-4	
bis(2-Chloroisopropyl) ether	ND	ug/L	24.0	1	03/15/16 00:00	03/21/16 13:25	39638-32-9	
2-Chloronaphthalene	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	91-58-7	
2-Chlorophenol	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	7005-72-3	
Chrysene	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	53-70-3	
3,3'-Dichlorobenzidine	ND	ug/L	80.0	1	03/15/16 00:00	03/21/16 13:25	91-94-1	L3
2,4-Dichlorophenol	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	120-83-2	
Diethylphthalate	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	84-66-2	
2,4-Dimethylphenol	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	105-67-9	
Dimethylphthalate	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	131-11-3	
Di-n-butylphthalate	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/L	100	1	03/15/16 00:00	03/21/16 13:25	534-52-1	
2,4-Dinitrophenol	ND	ug/L	200	1	03/15/16 00:00	03/21/16 13:25	51-28-5	
2,4-Dinitrotoluene	ND	ug/L	24.0	1	03/15/16 00:00	03/21/16 13:25	121-14-2	
2,6-Dinitrotoluene	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	606-20-2	
Di-n-octylphthalate	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	117-84-0	
bis(2-Ethylhexyl)phthalate	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	117-81-7	
Fluoranthene	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	206-44-0	
Fluorene	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	87-68-3	
Hexachlorobenzene	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	118-74-1	
Hexachlorocyclopentadiene	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	77-47-4	
Hexachloroethane	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	193-39-5	
Isophorone	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	78-59-1	
Naphthalene	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	91-20-3	
Nitrobenzene	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	98-95-3	
2-Nitrophenol	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	88-75-5	
4-Nitrophenol	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	100-02-7	
N-Nitrosodimethylamine	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	62-75-9	
N-Nitroso-di-n-propylamine	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	621-64-7	
N-Nitrosodiphenylamine	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	86-30-6	

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Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: BRIDGETON LPTP 014 QTR
Pace Project No.: 60214687

Sample: LPTP-P02,02,07,08,09-014 **Lab ID: 60214687002** Collected: 03/09/16 07:30 Received: 03/11/16 03:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
625 MSSV	Analytical Method: EPA 625 Preparation Method: EPA 625							
Pentachlorophenol	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	87-86-5	
Phenanthrene	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	85-01-8	
Phenol	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	108-95-2	
Pyrene	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	129-00-0	
1,2,4-Trichlorobenzene	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	120-82-1	
2,4,6-Trichlorophenol	ND	ug/L	20.0	1	03/15/16 00:00	03/21/16 13:25	88-06-2	
Surrogates								
Nitrobenzene-d5 (S)	96	%	33-120	1	03/15/16 00:00	03/21/16 13:25	4165-60-0	
2-Fluorobiphenyl (S)	76	%	39-120	1	03/15/16 00:00	03/21/16 13:25	321-60-8	
Terphenyl-d14 (S)	80	%	45-120	1	03/15/16 00:00	03/21/16 13:25	1718-51-0	
Phenol-d6 (S)	35	%	11-120	1	03/15/16 00:00	03/21/16 13:25	13127-88-3	
2-Fluorophenol (S)	52	%	17-120	1	03/15/16 00:00	03/21/16 13:25	367-12-4	
2,4,6-Tribromophenol (S)	92	%	39-120	1	03/15/16 00:00	03/21/16 13:25	118-79-6	
624 Volatile Organics	Analytical Method: EPA 624 Low							
Benzene	ND	ug/L	5.0	5		03/15/16 07:27	71-43-2	
Bromodichloromethane	ND	ug/L	5.0	5		03/15/16 07:27	75-27-4	
Bromoform	ND	ug/L	5.0	5		03/15/16 07:27	75-25-2	
Bromomethane	ND	ug/L	25.0	5		03/15/16 07:27	74-83-9	
Carbon tetrachloride	ND	ug/L	5.0	5		03/15/16 07:27	56-23-5	
Chlorobenzene	ND	ug/L	5.0	5		03/15/16 07:27	108-90-7	
Chloroethane	ND	ug/L	5.0	5		03/15/16 07:27	75-00-3	
2-Chloroethylvinyl ether	ND	ug/L	50.0	5		03/15/16 07:27	110-75-8	M1,c2
Chloroform	ND	ug/L	5.0	5		03/15/16 07:27	67-66-3	
Chloromethane	ND	ug/L	5.0	5		03/15/16 07:27	74-87-3	
Dibromochloromethane	ND	ug/L	5.0	5		03/15/16 07:27	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	5.0	5		03/15/16 07:27	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	5.0	5		03/15/16 07:27	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	5.0	5		03/15/16 07:27	106-46-7	
1,1-Dichloroethane	ND	ug/L	5.0	5		03/15/16 07:27	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	5		03/15/16 07:27	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	5		03/15/16 07:27	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	5.0	5		03/15/16 07:27	156-59-2	N2
trans-1,2-Dichloroethene	ND	ug/L	5.0	5		03/15/16 07:27	156-60-5	
1,2-Dichloropropane	ND	ug/L	5.0	5		03/15/16 07:27	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	5.0	5		03/15/16 07:27	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	5.0	5		03/15/16 07:27	10061-02-6	
Ethylbenzene	ND	ug/L	5.0	5		03/15/16 07:27	100-41-4	
Methylene chloride	ND	ug/L	5.0	5		03/15/16 07:27	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	5		03/15/16 07:27	79-34-5	
Tetrachloroethene	ND	ug/L	5.0	5		03/15/16 07:27	127-18-4	
Toluene	ND	ug/L	5.0	5		03/15/16 07:27	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	5.0	5		03/15/16 07:27	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	5		03/15/16 07:27	79-00-5	
Trichloroethene	ND	ug/L	5.0	5		03/15/16 07:27	79-01-6	
Trichlorofluoromethane	ND	ug/L	5.0	5		03/15/16 07:27	75-69-4	
Vinyl chloride	ND	ug/L	5.0	5		03/15/16 07:27	75-01-4	

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ANALYTICAL RESULTS

Project: BRIDGETON LPTP 014 QTR
Pace Project No.: 60214687

Sample: LPTP-P02,02,07,08,09-014 **Lab ID: 60214687002** Collected: 03/09/16 07:30 Received: 03/11/16 03:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
624 Volatile Organics	Analytical Method: EPA 624 Low							
Xylene (Total)	ND	ug/L	15.0	5		03/15/16 07:27	1330-20-7	N2
Surrogates								
4-Bromofluorobenzene (S)	102	%	87-112	5		03/15/16 07:27	460-00-4	F1
Toluene-d8 (S)	102	%	94-110	5		03/15/16 07:27	2037-26-5	
1,2-Dichloroethane-d4 (S)	104	%	84-112	5		03/15/16 07:27	17060-07-0	
Preservation pH	**7.0**		1.0	5		03/15/16 07:27		
HEM, Oil and Grease	Analytical Method: EPA 1664A							
Oil and Grease	**25.8**	mg/L	5.0	1		03/24/16 10:55		
Phenolics, Total Recoverable	Analytical Method: EPA 420.1							
Phenolics, Total Recoverable	ND	mg/L	0.050	1		03/22/16 11:29		
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E							
Cyanide	**0.026**	mg/L	0.0050	1		03/16/16 11:51	57-12-5	

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ANALYTICAL RESULTS

Project: BRIDGETON LPTP 014 QTR
Pace Project No.: 60214687

Sample: LPTP-P04,05,06-14 **Lab ID: 60214687003** Collected: 03/09/16 23:00 Received: 03/11/16 03:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Antimony	**18.7**	ug/L	10.0	1	03/15/16 09:30	03/15/16 16:56	7440-36-0	
Arsenic	**314**	ug/L	10.0	1	03/15/16 09:30	03/15/16 16:56	7440-38-2	
Beryllium	ND	ug/L	1.0	1	03/15/16 09:30	03/15/16 16:56	7440-41-7	
Cadmium	ND	ug/L	5.0	1	03/15/16 09:30	03/15/16 16:56	7440-43-9	
Chromium	**89.7**	ug/L	5.0	1	03/15/16 09:30	03/15/16 16:56	7440-47-3	
Copper	**14.3**	ug/L	10.0	1	03/15/16 09:30	03/15/16 16:56	7440-50-8	
Iron	**225000**	ug/L	50.0	1	03/15/16 09:30	03/15/16 16:56	7439-89-6	
Lead	**43.1**	ug/L	5.0	1	03/15/16 09:30	03/15/16 16:56	7439-92-1	
Magnesium	**145000**	ug/L	50.0	1	03/15/16 09:30	03/15/16 16:56	7439-95-4	
Nickel	**46.7**	ug/L	5.0	1	03/15/16 09:30	03/15/16 16:56	7440-02-0	
Selenium	ND	ug/L	15.0	1	03/15/16 09:30	03/15/16 16:56	7782-49-2	
Silver	ND	ug/L	7.0	1	03/15/16 09:30	03/15/16 16:56	7440-22-4	
Thallium	ND	ug/L	20.0	1	03/15/16 09:30	03/15/16 16:56	7440-28-0	
Zinc	**2680**	ug/L	50.0	1	03/15/16 09:30	03/15/16 16:56	7440-66-6	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	**2.4**	ug/L	0.20	1	03/22/16 09:10	03/22/16 12:46	7439-97-6	
2540D Total Suspended Solids	Analytical Method: SM 2540D							
Total Suspended Solids	**7110**	mg/L	5.0	1		03/14/16 09:59		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**8.9**	Std. Units		1		03/15/16 14:45		H6
5210B BOD, 5 day	Analytical Method: SM 5210B Preparation Method: SM 5210B							
BOD, 5 day	**8.7**	mg/L	2.0	1	03/11/16 10:19	03/16/16 07:46		1e
350.1 Ammonia	Analytical Method: EPA 350.1							
Nitrogen, Ammonia	**273**	mg/L	10.0	100		03/15/16 16:15	7664-41-7	
410.4 COD	Analytical Method: EPA 410.4							
Chemical Oxygen Demand	**4610**	mg/L	1000	100		03/23/16 14:40		

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

Section A – Required Client Information:

Company:	Republic Services
Address:	13570 St. Charles Rock Rd, Bridgeton, MO 63044
Email To:	dbouchard@republicservices.com
Phone:	314-302-3634
Fax:	
Requested Due Date/TAT:	

Section B – Required Project Information:

Report To:	Derek Bouchard
Copy To:	Kevin Kamp (kkamp@cecinc.com) Natalie Lafata/CEC, Barr validation group
Purchase Order No.:	
Project Name:	BRIDGETON LPTP 014 QTR
Project Number:	

Section C – Invoice Information:

Attention:	AMY HARGROVE
Company Name:	REPUBLIC SERVICES
Address:	BRIDGETON, MO 63044
Pace Quote Reference:	
Pace Project Manager:	Angie Brown 913-563-1402
Pace Profile #:	7979

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☑ OTHER ____

Site Location STATE: MO

Section D – Required Client Information

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Columns 1–8 (sample and collection details):

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COLLECTED: COMPOSITE START TIME	COLLECTED: COMPOSITE END/GRAB DATE	COLLECTED: COMPOSITE END/GRAB TIME
1	LPTP-00 TRIP BLANK	WT	G	3/9/16			
2	LPTP-P02,03,07,08,09-014 5D69U	WT	G		—	3/9/16	
3	LPTP-P04,05,06-014	WT	C	3/9/16		3/9/16	
4							
5							
6							
7							
8							
9							
10							
11							
12							

Columns 9–18 (containers and preservatives; "Preservatives" spans Unpreserved to Other):

ITEM #	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other
1		2	2							
2		12	8	1		2	1	1AG5	1BB02	
3		3	1	1	1					
4										
5										
6										
7										
8										
9										
10										
11										
12										

Columns 19–32 (requested analyses and lab IDs; "Requested Analysis Filtered (Y/N)" is printed above the analysis columns):

ITEM #	↓Analysis Test↓ (Y/N)	AMMONIA, COD	BOD, TSS, pH		Oil/Grease	Total Phenol	Fe, Mg EPA 200.7	200.7/245 TTO(*)	624 TTO	625 TTO		Cyanide TTO	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D. 60214687
1		2D69U							x					(*) TTO metals: Sb, As, Be, Cd 001
2					x	x	2AG1H		x	x		x	3A5/U	Cr,Cu,Pb,Hg,Ni,Se,Ag,Tl,Zn 002
3		x	x				x	x						1BP3G 1BP3U 1BP1U 003
4														
5														
6														SAMPLING POINT REF 014
7														
8														
9														
10														
11														
12														

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PO# 657401	[signature]	3/10/16	1150	Scott Mills	3/10/16	1150				
				[signature]	3/11/16	0330	3.2	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Nolan R Jones

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 3/9/16

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F-ALL-Q-020rev.08, 12-Oct-2007

Chain of Custody Record

№ 7259

Eberline Services
601 Scarboro Road
Oak Ridge, TN 37830
(865) 481-0683 Phone • (865) 483-4621 Fax

EBERLINE SERVICES

Page 1 of 1

Project Name: Bridgeton 1Q16 Leachate	Project Number:
Send Report To: Bridgeton Landfill	Sampler (Print Name): Matt Stewart
Address:	Sampler (Print Name):
	Shipment Method: Fed Ex
	Airbill Number: 8065 0351 3246
Phone:	Laboratory Receiving:
Fax:	

Purchase Order #: _____

Field Sample ID	Sample Date	Sample Time	Sample Matrix	Number of Containers	Gross Alpha	Gross Beta	Gross Gamma (incl Bi-212 + 235)	Radium-226	Radium-228	Total Uranium by KPA	Uranium-234-235-238	Total Dissolved Solids	Total Suspended Solids	Comments, Special Instructions, etc.	Lab Sample ID (to be completed by lab)
013 4	1/26-27/16	1244 0831 1631 1229	Aq	4	X	X	X	X	X	X	X	X	X		

16-01147

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Matt Stewart / Feezor Engineering, Inc	Fed Ex # 8065 0351 3246	1/27/16	1325
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
		1/29/16	1200
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

Sample Custodian Remarks (Completed By Laboratory):

QA/QC Level	Turnaround	Sample Receipt	
		Total # Containers Received?	
Level I ☐	Routine ☐	COC Seals Present?	
Level II ☐	24 Hour ☐	COC Seals Intact?	
Level III ☐	1 Week ☐	Received Containers Intact?	
Other ☐	Other _____	Temperature?	

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EBERLINE SERVICES
Oak Ridge Laboratory

Internal Chain of Custody

Work Order #	16-01147
Lab Deadline	2/19/2016
Analysis	UUISO - Level 4
Sample Matrix	Water

Comments

Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
04	36	MM1.0

	Location (circle one)					Initials	Date
Received by	(Sample Storage)	Rough Prep	Prep	Separations	Count Room	JWolfe 2/15/16 0[illegible]	
Relinquished by	Sample Storage	Rough Prep	(Prep)	Separations	Count Room	JWolfe 2/16/16 0740	
Received by	Sample Storage	Rough Prep	Prep	(Separations)	Count Room	[illegible] 2-16-16 0740	
Relinquished by	Sample Storage	Rough Prep	Prep	(Separations)	Count Room	[illegible] 2-19-16 0[illegible]	
Received by	Sample Storage	Rough Prep	Prep	Separations	(Count Room)	[illegible] 2-19-16 0800	
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	(Count Room)	KB 2/19/16 1136	
Received by	(Sample Storage)	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		

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EBERLINE SERVICES

EBERLINE ANALYTICAL CORPORATION
601 SCARBORO ROAD
OAK RIDGE, TENNESSEE 37830
PHONE (865) 481-0683
FAX (865) 483-4621

EBS-OR-40384

April 8, 2016

Lab Data
Herst & Associates, Inc.
4631 N St. Peters Parkway
St. Charles, MO 63304

CASE NARRATIVE-REVISED-2
Work Order # 16-01147-OR

SAMPLE RECEIPT

This work order contains one water sample received 01/29/2016. This sample was analyzed for Isotopic Uranium, Total Uranium by KPA, Radium-226/228, Gross Alpha/Beta, by Gamma Spectroscopy, Total Dissolved Solids and Total Suspended Solids.

CLIENT ID	LAB ID
013	16-01147-04

ANALYTICAL METHODS

Isotopic Uranium was analyzed using Method EML U-02 Modified. Total Uranium was analyzed using Method ASTM D5174 Modified. Radium-226 was analyzed using EPA Method 903.0 Modified. Radium-228 was analyzed using EPA Method 904.0. Gross Alpha/Beta was performed using EPA Method 900.0 Modified. Gamma Spectroscopy was performed using EPA Method 901.1 Modified. Total Dissolved Solids were performed using Standard Methods 2540C. Total Suspended Solids were performed using Standard Methods 2540D.

ANALYTICAL RESULTS

Combined Standard Uncertainty is reported at 2-sigma value.

Minimum Detectable Activity (MDA) values for data represented in this report are sample-specific. MDA measurements are determined based on factors and conditions including instrument settings, aliquot size and matrix type.

ISOTOPIC URANIUM

Sample was prepared by removing a representative aliquot followed by mixed acid digestions and dilutions as appropriate. An aliquot was taken from dilutions and Uranium was selectively extracted by ion exchange. Uranium was eluted, micro-precipitated and mounted on micro-porous filter media. Sample activities were then determined by alpha spectroscopy using energy specific regions of interest for Uranium-234, Uranium-235 and Uranium-238. Chemical recovery was determined by the use of a Uranium-232 tracer. Activity of the Uranium-232 tracer was determined by alpha spectroscopy using an energy specific region of interest.

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ANALYTICAL RESULTS CONTINUED

ISOTOPIC URANIUM CONTINUED

Sample demonstrated acceptable results for all Uranium analyses. Chemical recovery was acceptable for all samples. The Uranium-234, Uranium-235 and Uranium-238 method blank demonstrated acceptable results. Results for the Uranium-234 duplicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Uranium-235 and Uranium-238 duplicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Uranium-234 and Uranium-238 laboratory control sample demonstrated an acceptable percent recovery.

TOTAL URANIUM

A volumetric aliquot of the sample was removed and wet ashed until clear. Sample was placed into a 20 ml glass vial. Sample was digested and oxidized several times. The digested sample was diluted to a known volume and an aliquot was removed from this dilution. This aliquot was complexed with Chem-Check, Ura-Plex and subsequently analyzed using a kinetic phosphorescent analyzer.

Sample demonstrated acceptable results for all Total Uranium analyses. Chemical recovery was acceptable for all samples. The Total Uranium method blank demonstrated an acceptable result. Results for the Total Uranium duplicate demonstrated a high relative percent difference and normalized difference. Results for the Total Uranium low and high calibration range laboratory control sample demonstrated an acceptable percent recovery.

RADIUM-226

Sample was prepared by removing a representative aliquot followed by mixed acid digestions as appropriate. This was followed by precipitations of Radium/Barium Sulfate. Precipitates were dissolved in alkaline EDTA. Radium was selectively precipitated and then mounted on micro-porous filter media. Sample was counted by alpha spectroscopy using an energy specific region of interest for Radium-226. Inherent self-absorption from elemental Barium was corrected for in the final result. Chemical recovery was calculated by the use of a Barium-133 tracer, which was determined by HPGe gamma spectroscopy.

Sample demonstrated acceptable results for all Radium-226 analyses. Chemical recovery was acceptable for all samples. The Radium-226 method blank demonstrated an acceptable result. Results for the Radium-226 duplicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Radium-226 laboratory control sample demonstrated an acceptable percent recovery.

RADIUM-228

Following alpha spectroscopy analysis of Radium-226, Barium/Radium Sulfate precipitates were redissolved and allowed for sufficient ingrowth of the Actinium-228 daughter. After ingrowth, Actinium-228 was selectively precipitated. Precipitates were filtered and beta emissions for Actinium-228 were then counted on a gas proportional counter. Chemical recovery was determined by the use of a Barium-133 tracer, the activity of which was determined by HPGe gamma spectroscopy and an elemental Yttrium carrier by gravimetric measurements. The product of these two recoveries was used to calculate chemical yield.

ANALYTICAL RESULTS CONTINUED

RADIUM-228 CONTINUED

Sample demonstrated acceptable results for all Radium-228 analyses. Chemical recovery was acceptable for all samples. The Radium-228 method blank demonstrated an acceptable result. Results for the Radium-228 duplicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Radium-228 laboratory control sample demonstrated an acceptable percent recovery.

GROSS ALPHA & BETA

Sample was prepared by evaporation of a representative volumetric aliquot acidified with HNO_3. Reduced sample was then transferred to a steel planchet for final evaporation to dryness and flaming. Sample was then counted on a gas proportional counter. Results were corrected as required for inherent self-absorption based on residual mass present.

Sample demonstrated acceptable results for all Gross Alpha and Beta analyses. Due to the high solids content, samples demonstrated high method detection limits. Gross Alpha activity is not quantifiable in high solids content samples and therefore, results should be qualified as appropriate. Gross Beta results are also very problematic due to this condition. The Gross Alpha and Beta method blank demonstrated an acceptable result. Results for the Gross Alpha and Beta duplicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Gross Alpha and Beta laboratory control sample demonstrated an acceptable percent recovery.

GAMMA SPECTROSCOPY

Sample for Gamma Spectroscopy analysis was prepared by transferring a known mass/aliquot of the prepared and homogenized sample to a standard geometry container. Sample was counted on a High Purity Germanium (HPGe) gamma ray detector.

Sample demonstrated acceptable results for all gamma-emitting radionuclides as reported. Results for "Gross Gamma" were derived from Potassium-40 since this is the only true positive gamma emitting radionuclide. In this case, there are no real positive gamma emitting radionuclides in these samples and most results are reported from the Canberra "non-identified" radionuclides report. The method blank demonstrated acceptable results for all radionuclides as reported. All results for the method blank were reported from the Canberra Apex Gamma "Nuclide MDA Report" and are not positive. Results for the Actinium-228 and Bismuth-214 replicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Potassium-40 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Cobalt-60 and Cesium-137 laboratory control sample demonstrated an acceptable percent recovery.

TOTAL DISSOLVED SOLIDS (TDS)

A volumetric aliquot of the sample was filtered through a tared 0.45µm filter media into a tared 250ml beaker. Sample was then dried on a hot plate and was allowed to cool. The TDS content was determined by reweighing tared beaker.

Sample demonstrated a Total Dissolved Solids content of 10,391.0 mg/L.

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ANALYTICAL RESULTS CONTINUED

TOTAL SUSPENDED SOLIDS (TSS)

A volumetric aliquot of the sample was filtered through tared 0.45µm filter media. Filter media was then dried and reweighed for determination of TSS content.

Sample demonstrated a Total Suspended Solids content of 2.0 mg/L.

CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.

M.R. McDougall
Laboratory Manager

Date: 4/8/2016

Eberline Analytical wants and encourages your feedback regarding our performance providing radioanalytical services. Please visit http://www.eberlineservices.com/client.htm to provide us with feedback on our services.

: 00022

SECTION IV

ANALYTICAL RESULTS SUMMARY

Eberline Analytical
Final Report of Analysis

Report To:
Jonathan Wilkinson
Feezor Engineering
3405 Hollenberg Drive
Bridgeton, MO 63044

Work Order Details:
SDG: 16-01147-Revised
Purchase Order: PO5642481
Analysis Category: ENVIRONMENTAL
Sample Matrix: WA

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
16-01147-01	LCS	KNOWN	01/29/16 00:00	1/29/2016	2/2/2016	16-01147	Cobalt-60	EPA 901.1 Modified	1.98E+05	7.94E+03			pCi/l
16-01147-01	LCS	KNOWN	01/29/16 00:00	1/29/2016	2/2/2016	16-01147	Cesium-137	EPA 901.1 Modified	1.26E+05	5.04E+03			pCi/l
16-01147-01	LCS	SPIKE	01/29/16 00:00	1/29/2016	2/2/2016	16-01147	Cobalt-60	EPA 901.1 Modified	2.14E+05	1.25E+04	1.66E+04	1.81E+03	pCi/l
16-01147-01	LCS	SPIKE	01/29/16 00:00	1/29/2016	2/2/2016	16-01147	Cesium-137	EPA 901.1 Modified	1.42E+05	1.33E+04	1.51E+04	2.07E+03	pCi/l
16-01147-02	MBL	BLANK	01/29/16 00:00	1/29/2016	2/2/2016	16-01147	Actinium-228	EPA 901.1 Modified	-3.97E+00	1.14E+01	1.14E+01	1.60E+01	pCi/l
16-01147-02	MBL	BLANK	01/29/16 00:00	1/29/2016	2/2/2016	16-01147	Bismuth-212	EPA 901.1 Modified	-1.49E+01	3.05E+01	3.05E+01	3.65E+01	pCi/l
16-01147-02	MBL	BLANK	01/29/16 00:00	1/29/2016	2/2/2016	16-01147	Bismuth-214	EPA 901.1 Modified	6.01E+00	5.98E+00	5.98E+00	1.06E+01	pCi/l
16-01147-02	MBL	BLANK	01/29/16 00:00	1/29/2016	2/2/2016	16-01147	Gross Gamma	EPA 901.1 Modified	3.62E+01	3.92E+01	3.92E+01	7.23E+01	pCi/l
16-01147-02	MBL	BLANK	01/29/16 00:00	1/29/2016	2/2/2016	16-01147	Potassium-40	EPA 901.1 Modified	3.62E+01	3.92E+01	3.92E+01	7.23E+01	pCi/l
16-01147-02	MBL	BLANK	01/29/16 00:00	1/29/2016	2/2/2016	16-01147	Lead-212	EPA 901.1 Modified	5.34E+00	4.65E+00	4.66E+00	7.63E+00	pCi/l
16-01147-02	MBL	BLANK	01/29/16 00:00	1/29/2016	2/2/2016	16-01147	Lead-214	EPA 901.1 Modified	3.99E+00	6.18E+00	6.19E+00	9.93E+00	pCi/l
16-01147-02	MBL	BLANK	01/29/16 00:00	1/29/2016	2/2/2016	16-01147	Radium-226	EPA 901.1 Modified	6.01E+00	5.98E+00	5.98E+00	1.06E+01	pCi/l
16-01147-02	MBL	BLANK	01/29/16 00:00	1/29/2016	2/2/2016	16-01147	Radium-228	EPA 901.1 Modified	-3.97E+00	1.14E+01	1.14E+01	1.60E+01	pCi/l
16-01147-02	MBL	BLANK	01/29/16 00:00	1/29/2016	2/2/2016	16-01147	Thorium-234	EPA 901.1 Modified	4.72E+01	6.63E+01	6.63E+01	8.93E+01	pCi/l
16-01147-02	MBL	BLANK	01/29/16 00:00	1/29/2016	2/2/2016	16-01147	Thallium-208	EPA 901.1 Modified	3.87E+00	7.31E+00	7.32E+00	1.25E+01	pCi/l
16-01147-02	MBL	BLANK	01/29/16 00:00	1/29/2016	2/2/2016	16-01147	Uranium-235	EPA 901.1 Modified	-7.87E+00	1.34E+01	1.34E+01	2.11E+01	pCi/l
16-01147-03	DUP	013	01/27/16 12:29	1/29/2016	2/2/2016	16-01147	Actinium-228	EPA 901.1 Modified	3.74E+00	8.80E+00	8.81E+00	1.44E+01	pCi/l
16-01147-03	DUP	013	01/27/16 12:29	1/29/2016	2/2/2016	16-01147	Bismuth-212	EPA 901.1 Modified	6.18E+00	1.88E+01	1.88E+01	2.97E+01	pCi/l
16-01147-03	DUP	013	01/27/16 12:29	1/29/2016	2/2/2016	16-01147	Bismuth-214	EPA 901.1 Modified	8.34E+00	7.68E+00	7.69E+00	1.27E+01	pCi/l
16-01147-03	DUP	013	01/27/16 12:29	1/29/2016	2/2/2016	16-01147	Gross Gamma	EPA 901.1 Modified	2.29E+02	5.08E+01	5.22E+01	5.64E+01	pCi/l
16-01147-03	DUP	013	01/27/16 12:29	1/29/2016	2/2/2016	16-01147	Potassium-40	EPA 901.1 Modified	2.29E+02	5.08E+01	5.22E+01	5.64E+01	pCi/l
16-01147-03	DUP	013	01/27/16 12:29	1/29/2016	2/2/2016	16-01147	Lead-212	EPA 901.1 Modified	4.29E+00	4.28E+00	4.29E+00	8.15E+00	pCi/l
16-01147-03	DUP	013	01/27/16 12:29	1/29/2016	2/2/2016	16-01147	Lead-214	EPA 901.1 Modified	6.30E+00	5.44E+00	5.45E+00	8.24E+00	pCi/l
16-01147-03	DUP	013	01/27/16 12:29	1/29/2016	2/2/2016	16-01147	Radium-226	EPA 901.1 Modified	8.34E+00	7.68E+00	7.69E+00	1.27E+01	pCi/l
16-01147-03	DUP	013	01/27/16 12:29	1/29/2016	2/2/2016	16-01147	Radium-228	EPA 901.1 Modified	3.74E+00	8.80E+00	8.81E+00	1.44E+01	pCi/l
16-01147-03	DUP	013	01/27/16 12:29	1/29/2016	2/2/2016	16-01147	Thorium-234	EPA 901.1 Modified	5.51E+01	2.92E+01	2.93E+01	5.13E+01	pCi/l
16-01147-03	DUP	013	01/27/16 12:29	1/29/2016	2/2/2016	16-01147	Thallium-208	EPA 901.1 Modified	-9.79E-01	8.24E+00	8.24E+00	1.23E+01	pCi/l
16-01147-03	DUP	013	01/27/16 12:29	1/29/2016	2/2/2016	16-01147	Uranium-235	EPA 901.1 Modified	2.40E+00	1.49E+01	1.49E+01	1.97E+01	pCi/l

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

EBERLINE SERVICES
EBERLINE ANALYTICAL CORPORATION
601 SCARBORO ROAD OAK RIDGE, TN 37830 865/481-0683 FAX 865/483-4621

Eberline Analytical
Final Report of Analysis

Report To:
Jonathan Wilkinson
Feezor Engineering
3405 Hollenberg Drive
Bridgeton, MO 63044

Work Order Details:
SDG: 16-01147-Revised
Purchase Order: PO5642481
Analysis Category: ENVIRONMENTAL
Sample Matrix: WA

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
16-01147-04	DO	013	01/27/16 12:29	1/29/2016	2/2/2016	16-01147	Actinium-228	EPA 901.1 Modified	-2.26E+00	9.68E+00	9.68E+00	1.44E+01	pCi/l
16-01147-04	DO	013	01/27/16 12:29	1/29/2016	2/2/2016	16-01147	Bismuth-212	EPA 901.1 Modified	2.77E+01	1.70E+01	1.71E+01	3.28E+01	pCi/l
16-01147-04	DO	013	01/27/16 12:29	1/29/2016	2/2/2016	16-01147	Bismuth-214	EPA 901.1 Modified	4.21E+00	5.69E+00	5.69E+00	9.31E+00	pCi/l
16-01147-04	DO	013	01/27/16 12:29	1/29/2016	2/2/2016	16-01147	Gross Gamma	EPA 901.1 Modified	2.15E+02	5.13E+01	5.24E+01	5.23E+01	pCi/l
16-01147-04	DO	013	01/27/16 12:29	1/29/2016	2/2/2016	16-01147	Potassium-40	EPA 901.1 Modified	2.15E+02	5.13E+01	5.24E+01	5.23E+01	pCi/l
16-01147-04	DO	013	01/27/16 12:29	1/29/2016	2/2/2016	16-01147	Lead-212	EPA 901.1 Modified	4.21E+00	3.90E+00	3.91E+00	5.71E+00	pCi/l
16-01147-04	DO	013	01/27/16 12:29	1/29/2016	2/2/2016	16-01147	Lead-214	EPA 901.1 Modified	3.37E+00	5.27E+00	5.27E+00	7.55E+00	pCi/l
16-01147-04	DO	013	01/27/16 12:29	1/29/2016	2/2/2016	16-01147	Radium-226	EPA 901.1 Modified	4.21E+00	5.69E+00	5.69E+00	9.31E+00	pCi/l
16-01147-04	DO	013	01/27/16 12:29	1/29/2016	2/2/2016	16-01147	Radium-228	EPA 901.1 Modified	-2.26E+00	9.68E+00	9.68E+00	1.44E+01	pCi/l
16-01147-04	DO	013	01/27/16 12:29	1/29/2016	2/2/2016	16-01147	Thorium-234	EPA 901.1 Modified	6.02E+01	2.94E+01	2.86E+01	5.06E+01	pCi/l
16-01147-04	DO	013	01/27/16 12:29	1/29/2016	2/2/2016	16-01147	Thallium-208	EPA 901.1 Modified	2.34E+00	8.32E+00	8.32E+00	1.31E+01	pCi/l
16-01147-04	DO	013	01/27/16 12:29	1/29/2016	2/2/2016	16-01147	Uranium-235	EPA 901.1 Modified	-1.78E+00	1.60E+01	1.60E+01	2.06E+01	pCi/l
16-01147-01	LCS	KNOWN	01/29/16 00:00	1/29/2016	2/19/2016	16-01147	Gross Alpha	EPA 900.0 Modified	2.74E+02	1.18E+01			pCi/l
16-01147-01	LCS	SPIKE	01/29/16 00:00	1/29/2016	2/19/2016	16-01147	Gross Alpha	EPA 900.0 Modified	3.01E+02	3.82E+00	3.31E+01	2.87E-01	pCi/l
16-01147-02	MBL	BLANK	01/29/16 00:00	1/29/2016	2/19/2016	16-01147	Gross Alpha	EPA 900.0 Modified	-2.59E-02	8.01E-02	8.02E-02	2.19E-01	pCi/l
16-01147-03	DUP	013	01/27/16 12:29	1/29/2016	2/19/2016	16-01147	Gross Alpha	EPA 900.0 Modified	-3.65E+01	4.69E+01	4.71E+01	1.27E+02	pCi/l
16-01147-04	DO	013	01/27/16 12:29	1/29/2016	2/19/2016	16-01147	Gross Alpha	EPA 900.0 Modified	-5.28E+01	5.98E+01	6.00E+01	1.59E+02	pCi/l
16-01147-01	LCS	KNOWN	01/29/16 00:00	1/29/2016	2/19/2016	16-01147	Gross Beta	EPA 900.0 Modified	2.96E+02	8.88E+00			pCi/l
16-01147-01	LCS	SPIKE	01/29/16 00:00	1/29/2016	2/19/2016	16-01147	Gross Beta	EPA 900.0 Modified	2.68E+02	3.02E+00	3.72E+01	5.41E-01	pCi/l
16-01147-02	MBL	BLANK	01/29/16 00:00	1/29/2016	2/19/2016	16-01147	Gross Beta	EPA 900.0 Modified	-1.79E-01	2.81E-01	2.82E-01	6.20E-01	pCi/l
16-01147-03	DUP	013	01/27/16 12:29	1/29/2016	2/19/2016	16-01147	Gross Beta	EPA 900.0 Modified	1.42E+02	7.46E+01	7.72E+01	1.45E+02	pCi/l
16-01147-04	DO	013	01/27/16 12:29	1/29/2016	2/19/2016	16-01147	Gross Beta	EPA 900.0 Modified	2.20E+02	8.31E+01	8.85E+01	1.56E+02	pCi/l
16-01147-01	LCS	KNOWN	01/29/16 00:00	1/29/2016	2/17/2016	16-01147	Radium-226	EPA 903.0 Modified	9.90E+00	4.55E-01			pCi/l
16-01147-01	LCS	SPIKE	01/29/16 00:00	1/29/2016	2/17/2016	16-01147	Radium-226	EPA 903.0 Modified	1.10E+01	1.58E+00	2.81E+00	5.61E-01	pCi/l
16-01147-02	MBL	BLANK	01/29/16 00:00	1/29/2016	2/17/2016	16-01147	Radium-226	EPA 903.0 Modified	-5.47E-02	9.88E-02	9.95E-02	3.03E-01	pCi/l
16-01147-03	DUP	013	01/27/16 12:29	1/29/2016	2/17/2016	16-01147	Radium-226	EPA 903.0 Modified	2.58E-01	2.64E-01	2.70E-01	3.36E-01	pCi/l
16-01147-04	DO	013	01/27/16 12:29	1/29/2016	2/17/2016	16-01147	Radium-226	EPA 903.0 Modified	4.78E-01	3.74E-01	3.88E-01	3.43E-01	pCi/l

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

00025

Eberline Analytical
Final Report of Analysis

Report To:
Jonathan Wilkinson
Feezor Engineering
3405 Hollenberg Drive
Bridgeton, MO 63044

Work Order Details:
SDG: 16-01147-Revised
Purchase Order: PO5642481
Analysis Category: ENVIRONMENTAL
Sample Matrix: WA

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
16-01147-01	LCS	KNOWN	01/29/16 00:00	1/29/2016	2/22/2016	16-01147	Radium-228	EPA 904.0	9.13E+00	4.66E-01			pCi/l
16-01147-01	LCS	SPIKE	01/29/16 00:00	1/29/2016	2/22/2016	16-01147	Radium-228	EPA 904.0	9.07E+00	7.71E-01	2.19E+00	8.98E-01	pCi/l
16-01147-02	MBL	BLANK	01/29/16 00:00	1/29/2016	2/22/2016	16-01147	Radium-228	EPA 904.0	7.39E-02	3.03E-01	3.04E-01	6.45E-01	pCi/l
16-01147-03	DUP	013	01/27/16 12:29	1/29/2016	2/22/2016	16-01147	Radium-228	EPA 904.0	-1.47E-02	4.81E-01	4.81E-01	1.04E+00	pCi/l
16-01147-04	DO	013	01/27/16 12:29	1/29/2016	2/22/2016	16-01147	Radium-228	EPA 904.0	5.32E-01	4.91E-01	5.05E-01	9.87E-01	pCi/l
16-01147-01	LCS	KNOWN	01/29/16 00:00	1/29/2016	2/11/2016	16-01147	Total Uranium	ASTM D5174 Modified	8.00E+00	1.60E-01			ug/l
16-01147-0H	LCSH	KNOWN-H	01/29/16 00:00	1/29/2016	2/11/2016	16-01147	Total Uranium	ASTM D5174 Modified	2.00E+02	4.00E+00			ug/l
16-01147-01	LCS	SPIKE	01/29/16 00:00	1/29/2016	2/11/2016	16-01147	Total Uranium	ASTM D5174 Modified	8.23E+00	1.29E-01	9.19E-01	1.00E+00	ug/l
16-01147-0H	LCSH	SPIKE-H	01/29/16 00:00	1/29/2016	2/11/2016	16-01147	Total Uranium	ASTM D5174 Modified	2.00E+02	9.25E+00	2.39E+01	1.00E+00	ug/l
16-01147-02	MBL	BLANK	01/29/16 00:00	1/29/2016	2/11/2016	16-01147	Total Uranium	ASTM D5174 Modified	0.00E+00	0.00E+00	0.00E+00	1.00E+00	ug/l
16-01147-03	DUP	013	01/27/16 12:29	1/29/2016	2/11/2016	16-01147	Total Uranium	ASTM D5174 Modified	3.81E-01	8.21E-03	4.29E-02	1.00E+00	ug/l
16-01147-04	DO	013	01/27/16 12:29	1/29/2016	2/11/2016	16-01147	Total Uranium	ASTM D5174 Modified	1.12E+00	2.62E-02	1.26E-01	1.00E+00	ug/l
16-01147-01	LCS	KNOWN	01/29/16 00:00	1/29/2016	2/19/2016	16-01147	Uranium-234	EML U-02 Modified	7.18E+00	2.69E-01			pCi/l
16-01147-01	LCS	SPIKE	01/29/16 00:00	1/29/2016	2/19/2016	16-01147	Uranium-234	EML U-02 Modified	7.72E+00	2.14E+00	2.21E+00	2.46E-01	pCi/l
16-01147-02	MBL	BLANK	01/29/16 00:00	1/29/2016	2/19/2016	16-01147	Uranium-234	EML U-02 Modified	3.16E-01	1.31E-01	1.33E-01	6.77E-02	pCi/l
16-01147-03	DUP	013	01/27/16 12:29	1/29/2016	2/19/2016	16-01147	Uranium-234	EML U-02 Modified	4.31E-01	3.32E-01	3.34E-01	3.32E-01	pCi/l
16-01147-04	DO	013	01/27/16 12:29	1/29/2016	2/19/2016	16-01147	Uranium-234	EML U-02 Modified	4.93E-01	3.63E-01	3.65E-01	3.08E-01	pCi/l
		Uranium Natural =											
16-01147-01	LCS	SPIKE	01/29/16 00:00	1/29/2016	2/19/2016	16-01147	Uranium-235	EML U-02 Modified	9.34E-01	5.54E-01	5.58E-01	3.04E-01	pCi/l
16-01147-02	MBL	BLANK	01/29/16 00:00	1/29/2016	2/19/2016	16-01147	Uranium-235	EML U-02 Modified	1.72E-01	1.05E-01	1.06E-01	6.64E-02	pCi/l
16-01147-03	DUP	013	01/27/16 12:29	1/29/2016	2/19/2016	16-01147	Uranium-235	EML U-02 Modified	3.01E-01	3.25E-01	3.25E-01	4.35E-01	pCi/l
16-01147-04	DO	013	01/27/16 12:29	1/29/2016	2/19/2016	16-01147	Uranium-235	EML U-02 Modified	5.24E-02	1.60E-01	1.60E-01	3.79E-01	pCi/l
16-01147-01	LCS	KNOWN	01/29/16 00:00	1/29/2016	2/19/2016	16-01147	Uranium-238	EML U-02 Modified	6.96E+00	2.50E-01			pCi/l
16-01147-01	LCS	SPIKE	01/29/16 00:00	1/29/2016	2/19/2016	16-01147	Uranium-238	EML U-02 Modified	8.40E+00	2.30E+00	2.37E+00	3.52E-01	pCi/l
16-01147-02	MBL	BLANK	01/29/16 00:00	1/29/2016	2/19/2016	16-01147	Uranium-238	EML U-02 Modified	4.24E-02	5.81E-02	5.82E-02	9.44E-02	pCi/l
16-01147-03	DUP	013	01/27/16 12:29	1/29/2016	2/19/2016	16-01147	Uranium-238	EML U-02 Modified	6.74E-02	1.68E-01	1.68E-01	3.51E-01	pCi/l
16-01147-04	DO	013	01/27/16 12:29	1/29/2016	2/19/2016	16-01147	Uranium-238	EML U-02 Modified	3.74E-01	3.12E-01	3.13E-01	2.67E-01	pCi/l
16-01147-04	TRG	013	01/27/16 12:29	1/29/2016	2/1/2016	16-01147	TDS	SM2540C	1.04E+04				mg/l
16-01147-04	TRG	013	01/27/16 12:29	1/29/2016	2/1/2016	16-01147	TSS	SM2540D	2.00E+00				mg/l

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

EBERLINE SERVICES

EBERLINE ANALYTICAL CORPORATION
601 SCARBORO ROAD OAK RIDGE, TN 37830 865/481-0683 FAX 865/483-4621

Chain of Custody Record

№ 7395

Eberline Services
601 Scarboro Road
Oak Ridge, TN 37830
(865) 481-0683 Phone • (865) 483-4621 Fax

EBERLINE SERVICES

Project Name: Bridgeton 1Q16 Leachate	Project Number:
Send Report To: Bridgeton Landfill	Sampler (Print Name): Michael Spurgeon
Address:	Sampler (Print Name):
	Shipment Method: FedEx
	Airbill Number: 806503513235
Phone:	Laboratory Receiving:
Fax:	

Page 1 of 1

Purchase Order #:

Field Sample ID	Sample Date	Sample Time	Sample Matrix	Number of Containers	Gross Alpha	Gross Beta	Gross Gamma (incl. Bi-212 & K-23)	Radium-226	Radium-228	Total Uranium by KPA	Uranium-234, -235, -238	Total Dissolved Solids	Total Suspended Solids	Comments, Special Instructions, etc.	Lab Sample ID (to be completed by lab)
014 4	2/17-18/16	1150 0900 1600 1210	Aq	4	X	X	X	X	X	X	X	X	X		

16-0209

REC'D FEB 19 2016

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Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
	Fuezer Engineering, Inc. FedEx #806503513235	2-18-16	1245
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
		2-19-16	1200
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

Sample Custodian Remarks (Completed By Laboratory):

QA/QC Level		Turnaround		Sample Receipt	
Level I	☐	Routine	☐	Total # Containers Received?	
Level II	☐	24 Hour	☐	COC Seals Present?	
Level III	☐	1 Week	☐	COC Seals Intact?	
Other	☐	Other ____		Received Containers Intact?	
				Temperature?	

0205

MSD 033713

EBERLINE SERVICES Oak Ridge Laboratory	Internal Chain of Custody	Work Order #	16-02099
		Lab Deadline	3/11/2016
		Analysis	UUISO - Level 4
		Sample Matrix	Water

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
	04	39	R1.5

	Location (circle one)					Initials	Date
Received by	**Sample Storage**	Rough Prep	Prep	Separations	Count Room	[illegible]	3/9/16 [illegible]
Relinquished by	Sample Storage	Rough Prep	**Prep**	Separations	Count Room	[illegible]	3/11/16 [illegible]
Received by	Sample Storage	Rough Prep	Prep	**Separations**	Count Room	TPD	3/11/16 1000
Relinquished by	Sample Storage	Rough Prep	Prep	**Separations**	Count Room	[illegible]	3/17/16 0820
Received by	Sample Storage	Rough Prep	Prep	Separations	**Count Room**	AG	3/17/16 0820
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	**Count Room**	KB	3/17/16 1237
Received by	**Sample Storage**	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		

Printed: 2/23/2016 9:51 AM

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601 SCARBORO ROAD
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EBS-OR-40538

April 1, 2016

Jonathan Wilkinson
Feezor Engineering, Inc.
3405 Hollenberg Drive
Bridgeton, MO 63044

CASE NARRATIVE
Work Order # 16-02099-OR

SAMPLE RECEIPT

This work order contains one water sample received 02/19/2016. This sample was analyzed for Isotopic Uranium, Total Uranium by KPA, Radium-226/228, Gross Alpha/Beta, by Gamma Spectroscopy, Total Dissolved Solids and Total Suspended Solids.

CLIENT ID	LAB ID
014	16-02099-04

ANALYTICAL METHODS

Isotopic Uranium was analyzed using Method EML U-02 Modified. Total Uranium was analyzed using Method ASTM D5174 Modified. Radium-226 was analyzed using EPA Method 903.0 Modified. Radium-228 was analyzed using EPA Method 904.0. Gross Alpha/Beta was performed using EPA Method 900.0 Modified. Gamma Spectroscopy was performed using EPA Method 901.1 Modified. Total Dissolved Solids were performed using Standard Methods 2540C. Total Suspended Solids were performed using Standard Methods 2540D.

ANALYTICAL RESULTS

Combined Standard Uncertainty is reported at 2-sigma value.

Minimum Detectable Activity (MDA) values for data represented in this report are sample-specific. MDA measurements are determined based on factors and conditions including instrument settings, aliquot size and matrix type.

ISOTOPIC URANIUM

Sample was prepared by removing a representative aliquot followed by mixed acid digestions and dilutions as appropriate. An aliquot was taken from dilutions and Uranium was selectively extracted by ion exchange. Uranium was eluted, micro-precipitated and mounted on micro-porous filter media. Sample activities were then determined by alpha spectroscopy using energy specific regions of interest for Uranium-234, Uranium-235 and Uranium-238. Chemical recovery was determined by the use of a Uranium-232 tracer. Activity of the Uranium-232 tracer was determined by alpha spectroscopy using an energy specific region of interest.

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ANALYTICAL RESULTS CONTINUED

ISOTOPIC URANIUM CONTINUED

Sample demonstrated acceptable results for all Uranium determinations. Chemical recovery was acceptable for all samples. The Uranium-234, Uranium-235 and Uranium-238 method blank demonstrated an acceptable result. Results for the Uranium-234 and Uranium-238 duplicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Uranium-235 duplicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Uranium-234 and Uranium-238 laboratory control sample demonstrated an acceptable percent recovery.

TOTAL URANIUM

A volumetric aliquot of the sample was removed and wet ashed until clear. Sample was placed into a 20 ml glass vial. Sample was digested and oxidized several times. The digested sample was diluted to a known volume and an aliquot was removed from this dilution. This aliquot was complexed with Chem-Check, Ura-Plex and subsequently analyzed using a kinetic phosphorescent analyzer.

Sample demonstrated acceptable results for all Total Uranium determinations. Chemical recovery was acceptable for all samples. The Total Uranium method blank demonstrated an acceptable result. Results for the Total Uranium duplicate demonstrated a high relative percent difference and normalized difference. This sample is not positive for Uranium and accurate quantification below the method detection limit is not possible causing this condition. Results for the Total Uranium low and high calibration range laboratory control sample demonstrated an acceptable percent recovery.

RADIUM-226

Sample was prepared by removing a representative aliquot followed by mixed acid digestions as appropriate. This was followed by precipitations of Radium/Barium Sulfate. Precipitates were dissolved in alkaline EDTA. Radium was selectively precipitated and then mounted on micro-porous filter media. Sample was counted by alpha spectroscopy using an energy specific region of interest for Radium-226. The final result was corrected for inherent self-absorption from elemental Barium. Chemical recovery was calculated by the use of a Barium-133 tracer, which was determined by HPGe gamma spectroscopy.

Sample demonstrated acceptable results for all Radium-226 determinations. Chemical recovery was acceptable for all samples. The Radium-226 method blank demonstrated an acceptable result. Results for the Radium-226 duplicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Radium-226 laboratory control sample demonstrated an acceptable percent recovery.

RADIUM-228

Following alpha spectroscopy analysis of Radium-226, Barium/Radium Sulfate precipitates were redissolved and allowed for sufficient ingrowth of the Actinium-228 daughter. After ingrowth, Actinium-228 was selectively precipitated. Precipitates were filtered and beta emissions for Actinium-228 were then counted on a gas proportional counter. Chemical recovery was determined by the use of a Barium-133 tracer, the activity of which was determined by HPGe gamma spectroscopy and an elemental Yttrium carrier by gravimetric measurements. The product of these two recoveries was used to calculate chemical yield.

ANALYTICAL RESULTS CONTINUED

RADIUM-228 CONTINUED

Sample demonstrated acceptable results for all Radium-228 determinations. Chemical recovery was acceptable for all samples. The Radium-228 method blank demonstrated an acceptable result. Results for the Radium-228 duplicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Radium-228 laboratory control sample demonstrated an acceptable percent recovery.

GROSS ALPHA & BETA

Sample was prepared by evaporation of a representative volumetric aliquot acidified with HNO_3. Reduced sample was then transferred to a steel planchet for final evaporation to dryness and flaming. Sample was then counted on a gas proportional counter. Results were corrected as required for inherent self-absorption based on residual mass present.

Sample demonstrated acceptable results for all Gross Alpha and Beta determinations. Samples contain very high solids making quantification of Gross Alpha and Beta activity very difficult. In the case of this sample, Gross Alpha results are non-quantifiable and should be qualified as rejected (R). Results for Gross Beta are somewhat quantifiable; however, results may be biased due to the small aliquot analyzed and subsequent self-absorption corrections for mass applied to the result. Results for Gross Beta should most likely be qualified as estimated (J). The Gross Alpha and Beta method blank demonstrated an acceptable result. Results for the Gross Alpha and Beta duplicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Gross Alpha and Beta laboratory control sample demonstrated an acceptable percent recovery.

GAMMA SPECTROSCOPY

Sample for Gamma Spectroscopy analysis was prepared by transferring a known mass/aliquot of the prepared and homogenized sample to a standard geometry container. Sample was counted on a High Purity Germanium (HPGe) gamma ray detector.

Sample demonstrated acceptable results for Potassium-40 activity. All other gamma emitting radionuclides as reported are from the Canberra Gamma Apex "Nuclide MDA Report" and were not detected. All other results should be qualified as non-detect (U). Due to this condition, there is no correlation between Uranium and Thorium series radionuclides versus chemistry results for Radium-226, Isotopic Uranium and Radium-228. Results for "Gross Gamma" were derived from Potassium-40 since this is the only true positive gamma emitting radionuclide. The method blank demonstrated acceptable results for all radionuclides as reported. Results for the Bismuth-214, Radium-226 and Radium-228 replicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Cobalt-60 and Cesium-137 laboratory control sample demonstrated an acceptable percent recovery.

TOTAL DISSOLVED SOLIDS (TDS)

A volumetric aliquot of the sample was filtered through a tared 0.45µm filter media into a tared 250ml beaker. Sample was then dried on a hot plate and was allowed to cool. The TDS content was determined by reweighing tared beaker.

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ANALYTICAL RESULTS CONTINUED

TOTAL DISSOLVED SOLIDS (TDS) CONTINUED

Sample demonstrated a Total Dissolved Solids content of 8,175.0 mg/L.

TOTAL SUSPENDED SOLIDS (TSS)

A volumetric aliquot of the sample was filtered through tared 0.45µm filter media. Filter media was then dried and reweighed for determination of TSS content.

Sample demonstrated a Total Suspended Solids content of 65,265.0 mg/L.

CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.

M.R. McDougall
Laboratory Manager

Date: 4/1/2016

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: 00022

MSD 033718

SECTION IV

ANALYTICAL RESULTS SUMMARY

Eberline Analytical
Final Report of Analysis

Report To:
Jonathan E. Wilkinson, P.E.
Feezor Engineering, Inc.
3405 Hollenberg Drive
Bridgeton, MO 63044

Work Order Details:

SDG:	16-02099
Purchase Order:	PO5642481
Analysis Category:	ENVIRONMENTAL
Sample Matrix:	WA

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
16-02099-01	LCS	KNOWN	02/23/16 00:00	2/19/2016	2/24/2016	16-02099	Cobalt-60	EPA 901.1 Modified	1.98E+05	7.94E+03			pCi/l
16-02099-01	LCS	KNOWN	02/23/16 00:00	2/19/2016	2/24/2016	16-02099	Cesium-137	EPA 901.1 Modified	1.26E+05	5.04E+03			pCi/l
16-02099-01	LCS	SPIKE	02/23/16 00:00	2/19/2016	2/24/2016	16-02099	Cobalt-60	EPA 901.1 Modified	2.15E+05	1.25E+04	1.67E+04	1.88E+03	pCi/l
16-02099-01	LCS	SPIKE	02/23/16 00:00	2/19/2016	2/24/2016	16-02099	Cesium-137	EPA 901.1 Modified	1.42E+05	1.33E+04	1.52E+04	2.19E+03	pCi/l
16-02099-02	MBL	BLANK	02/23/16 00:00	2/19/2016	2/24/2016	16-02099	Actinium-228	EPA 901.1 Modified	-3.36E+00	1.32E+01	1.32E+01	2.07E+01	pCi/l
16-02099-02	MBL	BLANK	02/23/16 00:00	2/19/2016	2/24/2016	16-02099	Bismuth-212	EPA 901.1 Modified	-9.73E+00	2.97E+01	2.97E+01	4.56E+01	pCi/l
16-02099-02	MBL	BLANK	02/23/16 00:00	2/19/2016	2/24/2016	16-02099	Bismuth-214	EPA 901.1 Modified	5.81E-01	7.88E+00	7.88E+00	1.23E+01	pCi/l
16-02099-02	MBL	BLANK	02/23/16 00:00	2/19/2016	2/24/2016	16-02099	Gross Gamma	EPA 901.1 Modified	6.53E+01	4.34E+01	4.36E+01	6.62E+01	pCi/l
16-02099-02	MBL	BLANK	02/23/16 00:00	2/19/2016	2/24/2016	16-02099	Potassium-40	EPA 901.1 Modified	6.53E+01	4.34E+01	4.36E+01	6.62E+01	pCi/l
16-02099-02	MBL	BLANK	02/23/16 00:00	2/19/2016	2/24/2016	16-02099	Lead-212	EPA 901.1 Modified	1.90E+00	4.23E+00	4.24E+00	6.66E+00	pCi/l
16-02099-02	MBL	BLANK	02/23/16 00:00	2/19/2016	2/24/2016	16-02099	Lead-214	EPA 901.1 Modified	4.80E+00	6.19E+00	6.19E+00	1.01E+01	pCi/l
16-02099-02	MBL	BLANK	02/23/16 00:00	2/19/2016	2/24/2016	16-02099	Radium-226	EPA 901.1 Modified	5.81E-01	7.88E+00	7.88E+00	1.23E+01	pCi/l
16-02099-02	MBL	BLANK	02/23/16 00:00	2/19/2016	2/24/2016	16-02099	Radium-228	EPA 901.1 Modified	-3.36E+00	1.32E+01	1.32E+01	2.07E+01	pCi/l
16-02099-02	MBL	BLANK	02/23/16 00:00	2/19/2016	2/24/2016	16-02099	Thorium-234	EPA 901.1 Modified	8.32E+01	3.26E+01	3.29E+01	5.32E+01	pCi/l
16-02099-02	MBL	BLANK	02/23/16 00:00	2/19/2016	2/24/2016	16-02099	Thallium-208	EPA 901.1 Modified	8.88E+00	1.03E+01	1.03E+01	1.72E+01	pCi/l
16-02099-02	MBL	BLANK	02/23/16 00:00	2/19/2016	2/24/2016	16-02099	Uranium-235	EPA 901.1 Modified	1.56E+01	1.35E+01	1.36E+01	2.16E+01	pCi/l
16-02099-03	DUP	014	02/18/16 12:10	2/19/2016	2/24/2016	16-02099	Actinium-228	EPA 901.1 Modified	1.61E+01	8.76E+00	8.80E+00	1.73E+01	pCi/l
16-02099-03	DUP	014	02/18/16 12:10	2/19/2016	2/24/2016	16-02099	Bismuth-212	EPA 901.1 Modified	1.09E+01	1.89E+01	1.89E+01	3.18E+01	pCi/l
16-02099-03	DUP	014	02/18/16 12:10	2/19/2016	2/24/2016	16-02099	Bismuth-214	EPA 901.1 Modified	5.94E+00	5.51E+00	5.52E+00	9.34E+00	pCi/l
16-02099-03	DUP	014	02/18/16 12:10	2/19/2016	2/24/2016	16-02099	Gross Gamma	EPA 901.1 Modified	2.65E+02	5.63E+01	5.79E+01	4.97E+01	pCi/l
16-02099-03	DUP	014	02/18/16 12:10	2/19/2016	2/24/2016	16-02099	Potassium-40	EPA 901.1 Modified	2.65E+02	5.63E+01	5.79E+01	4.97E+01	pCi/l
16-02099-03	DUP	014	02/18/16 12:10	2/19/2016	2/24/2016	16-02099	Lead-212	EPA 901.1 Modified	3.83E+00	3.30E+00	3.31E+00	5.81E+00	pCi/l
16-02099-03	DUP	014	02/18/16 12:10	2/19/2016	2/24/2016	16-02099	Lead-214	EPA 901.1 Modified	5.85E+00	4.37E+00	4.38E+00	8.04E+00	pCi/l
16-02099-03	DUP	014	02/18/16 12:10	2/19/2016	2/24/2016	16-02099	Radium-226	EPA 901.1 Modified	5.94E+00	5.51E+00	5.52E+00	9.34E+00	pCi/l
16-02099-03	DUP	014	02/18/16 12:10	2/19/2016	2/24/2016	16-02099	Radium-228	EPA 901.1 Modified	1.61E+01	8.76E+00	8.80E+00	1.73E+01	pCi/l
16-02099-03	DUP	014	02/18/16 12:10	2/19/2016	2/24/2016	16-02099	Thorium-234	EPA 901.1 Modified	8.02E+01	7.89E+01	7.90E+01	1.32E+02	pCi/l
16-02099-03	DUP	014	02/18/16 12:10	2/19/2016	2/24/2016	16-02099	Thallium-208	EPA 901.1 Modified	3.34E+00	7.92E+00	7.92E+00	1.27E+01	pCi/l
16-02099-03	DUP	014	02/18/16 12:10	2/19/2016	2/24/2016	16-02099	Uranium-235	EPA 901.1 Modified	4.95E+00	1.63E+01	1.63E+01	2.18E+01	pCi/l

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

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EBERLINE ANALYTICAL CORPORATION
601 SCARBORO ROAD OAK RIDGE, TN 37830 865/481-0683 FAX 865/483-4621

Eberline Analytical
Final Report of Analysis

Report To:
Jonathan E. Wilkinson, P.E.
Feezor Engineering, Inc.
3405 Hollenberg Drive
Bridgeton, MO 63044

Work Order Details:
SDG: 16-02099
Purchase Order: PO5642481
Analysis Category: ENVIRONMENTAL
Sample Matrix: WA

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
16-02099-04	DO	014	02/18/16 12:10	2/19/2016	2/25/2016	16-02099	Actinium-228	EPA 901.1 Modified	8.85E+00	1.01E+01	1.01E+01	1.77E+01	pCi/l
16-02099-04	DO	014	02/18/16 12:10	2/19/2016	2/25/2016	16-02099	Bismuth-212	EPA 901.1 Modified	-2.66E+00	2.01E+01	2.01E+01	2.91E+01	pCi/l
16-02099-04	DO	014	02/18/16 12:10	2/19/2016	2/25/2016	16-02099	Bismuth-214	EPA 901.1 Modified	9.39E+00	5.94E+00	5.96E+00	9.30E+00	pCi/l
16-02099-04	DO	014	02/18/16 12:10	2/19/2016	2/25/2016	16-02099	Gross Gamma	EPA 901.1 Modified	2.69E+02	6.02E+01	6.17E+01	6.11E+01	pCi/l
16-02099-04	DO	014	02/18/16 12:10	2/19/2016	2/25/2016	16-02099	Potassium-40	EPA 901.1 Modified	2.69E+02	6.02E+01	6.17E+01	6.11E+01	pCi/l
16-02099-04	DO	014	02/18/16 12:10	2/19/2016	2/25/2016	16-02099	Lead-212	EPA 901.1 Modified	5.54E+00	3.39E+00	3.40E+00	6.14E+00	pCi/l
16-02099-04	DO	014	02/18/16 12:10	2/19/2016	2/25/2016	16-02099	Lead-214	EPA 901.1 Modified	6.46E+00	4.77E+00	4.78E+00	7.64E+00	pCi/l
16-02099-04	DO	014	02/18/16 12:10	2/19/2016	2/25/2016	16-02099	Radium-226	EPA 901.1 Modified	9.39E+00	5.94E+00	5.96E+00	9.30E+00	pCi/l
16-02099-04	DO	014	02/18/16 12:10	2/19/2016	2/25/2016	16-02099	Radium-228	EPA 901.1 Modified	8.85E+00	1.01E+01	1.01E+01	1.77E+01	pCi/l
16-02099-04	DO	014	02/18/16 12:10	2/19/2016	2/25/2016	16-02099	Thorium-234	EPA 901.1 Modified	1.03E+02	6.76E+01	6.78E+01	9.41E+01	pCi/l
16-02099-04	DO	014	02/18/16 12:10	2/19/2016	2/25/2016	16-02099	Thallium-208	EPA 901.1 Modified	6.36E+00	6.53E+00	6.54E+00	1.14E+01	pCi/l
16-02099-04	DO	014	02/18/16 12:10	2/19/2016	2/25/2016	16-02099	Uranium-235	EPA 901.1 Modified	6.22E-01	1.64E+01	1.64E+01	2.15E+01	pCi/l
16-02099-01	LCS	KNOWN	02/23/16 00:00	2/19/2016	3/10/2016	16-02099	Gross Alpha	EPA 900.0 Modified	2.70E+02	1.16E+01			pCi/l
16-02099-01	LCS	SPIKE	02/23/16 00:00	2/19/2016	3/10/2016	16-02099	Gross Alpha	EPA 900.0 Modified	3.30E+02	4.09E+00	3.62E+01	2.24E-01	pCi/l
16-02099-02	MBL	BLANK	02/23/16 00:00	2/19/2016	3/10/2016	16-02099	Gross Alpha	EPA 900.0 Modified	-9.20E-02	7.73E-02	7.79E-02	2.51E-01	pCi/l
16-02099-03	DUP	014	02/18/16 12:10	2/19/2016	3/10/2016	16-02099	Gross Alpha	EPA 900.0 Modified	5.90E+01	1.42E+02	1.42E+02	3.10E+02	pCi/l
16-02099-04	DO	014 rejected	02/18/16 12:10	2/19/2016	3/10/2016	16-02099	Gross Alpha	EPA 900.0 Modified	~~4.23E+02~~	1.79E+02	1.85E+02	1.87E+02	pCi/l
16-02099-01	LCS	KNOWN	02/23/16 00:00	2/19/2016	3/10/2016	16-02099	Gross Beta	EPA 900.0 Modified	2.91E+02	8.73E+00			pCi/l
16-02099-01	LCS	SPIKE	02/23/16 00:00	2/19/2016	3/10/2016	16-02099	Gross Beta	EPA 900.0 Modified	2.91E+02	3.22E+00	4.03E+01	5.90E-01	pCi/l
16-02099-02	MBL	BLANK	02/23/16 00:00	2/19/2016	3/10/2016	16-02099	Gross Beta	EPA 900.0 Modified	-2.31E-01	2.74E-01	2.76E-01	6.15E-01	pCi/l
16-02099-03	DUP	014	02/18/16 12:10	2/19/2016	3/10/2016	16-02099	Gross Beta	EPA 900.0 Modified	5.65E+02	1.96E+02	2.11E+02	3.61E+02	pCi/l
16-02099-04	DO	014	02/18/16 12:10	2/19/2016	3/10/2016	16-02099	Gross Beta	EPA 900.0 Modified	3.26E+02	1.72E+02	1.78E+02	3.32E+02	pCi/l
16-02099-01	LCS	KNOWN	02/23/16 00:00	2/19/2016	3/17/2016	16-02099	Radium-226	EPA 903.0 Modified	1.01E+01	4.63E-01			pCi/l
16-02099-01	LCS	SPIKE	02/23/16 00:00	2/19/2016	3/17/2016	16-02099	Radium-226	EPA 903.0 Modified	1.02E+01	1.50E+00	2.64E+00	2.59E-01	pCi/l
16-02099-02	MBL	BLANK	02/23/16 00:00	2/19/2016	3/17/2016	16-02099	Radium-226	EPA 903.0 Modified	-1.10E-02	1.29E-01	1.29E-01	2.71E-01	pCi/l
16-02099-03	DUP	014	02/18/16 12:10	2/19/2016	3/17/2016	16-02099	Radium-226	EPA 903.0 Modified	5.07E-01	5.21E-01	5.32E-01	5.53E-01	pCi/l
16-02099-04	DO	014	02/18/16 12:10	2/19/2016	3/17/2016	16-02099	Radium-226	EPA 903.0 Modified	2.82E-01	4.21E-01	4.25E-01	6.86E-01	pCi/l

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

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Eberline Analytical
Final Report of Analysis

Report To:
Jonathan E. Wilkinson, P.E.
Feezor Engineering, Inc.
3405 Hollenberg Drive
Bridgeton, MO 63044

Work Order Details:

SDG:	16-02099
Purchase Order:	PO5642481
Analysis Category:	ENVIRONMENTAL
Sample Matrix:	WA

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
16-02099-01	LCS	KNOWN	02/23/16 00:00	2/19/2016	3/23/2016	16-02099	Radium-228	EPA 904.0	8.93E+00	4.55E-01			pCi/l
16-02099-01	LCS	SPIKE	02/23/16 00:00	2/19/2016	3/23/2016	16-02099	Radium-228	EPA 904.0	1.02E+01	8.99E-01	2.48E+00	1.12E+00	pCi/l
16-02099-02	MBL	BLANK	02/23/16 00:00	2/19/2016	3/23/2016	16-02099	Radium-228	EPA 904.0	-1.80E-01	5.46E-01	5.47E-01	1.19E+00	pCi/l
16-02099-03	DUP	014	02/18/16 12:10	2/19/2016	3/23/2016	16-02099	Radium-228	EPA 904.0	4.35E-01	1.34E+00	1.35E+00	2.82E+00	pCi/l
16-02099-04	DO	014	02/18/16 12:10	2/19/2016	3/23/2016	16-02099	Radium-228	EPA 904.0	5.22E-01	1.27E+00	1.28E+00	2.66E+00	pCi/l
16-02099-01	LCS	KNOWN	02/23/16 00:00	2/19/2016	3/10/2016	16-02099	Total Uranium	ASTM D5174 Modified	8.00E+00	1.60E-01			ug/l
16-02099-01	LCSH	KNOWN-H	02/23/16 00:00	2/19/2016	3/10/2016	16-02099	Total Uranium	ASTM D5174 Modified	2.00E+02	4.00E+00			ug/l
16-02099-01	LCS	SPIKE	02/23/16 00:00	2/19/2016	3/10/2016	16-02099	Total Uranium	ASTM D5174 Modified	8.07E+00	1.24E-01	9.00E-01	1.00E+00	ug/l
16-02099-0H	LCSH	SPIKE-H	02/23/16 00:00	2/19/2016	3/10/2016	16-02099	Total Uranium	ASTM D5174 Modified	1.94E+02	9.92E+00	2.36E+01	1.00E+00	ug/l
16-02099-02	MBL	BLANK	02/23/16 00:00	2/19/2016	3/10/2016	16-02099	Total Uranium	ASTM D5174 Modified	0.00E+00	1.00E-02	1.00E-02	1.00E+00	ug/l
16-02099-03	DUP	014	02/18/16 12:10	2/19/2016	3/10/2016	16-02099	Total Uranium	ASTM D5174 Modified	2.96E-01	6.31E-03	3.33E-02	1.00E+00	ug/l
16-02099-04	DO	014	02/18/16 12:10	2/19/2016	3/10/2016	16-02099	Total Uranium	ASTM D5174 Modified	8.33E-01	1.70E-02	9.36E-02	1.00E+00	ug/l
16-02099-01	LCS	KNOWN	02/23/16 00:00	2/19/2016	3/17/2016	16-02099	Uranium-234	EML U-02 Modified	7.28E+00	2.62E-01			pCi/l
16-02099-01	LCS	SPIKE	02/23/16 00:00	2/19/2016	3/17/2016	16-02099	Uranium-234	EML U-02 Modified	6.10E+00	8.84E-01	9.85E-01	8.16E-02	pCi/l
16-02099-02	MBL	BLANK	02/23/16 00:00	2/19/2016	3/17/2016	16-02099	Uranium-234	EML U-02 Modified	2.20E-01	1.14E-01	1.15E-01	7.45E-02	pCi/l
16-02099-03	DUP	014	02/18/16 12:10	2/19/2016	3/17/2016	16-02099	Uranium-234	EML U-02 Modified	1.94E+00	7.06E-01	7.19E-01	3.95E-01	pCi/l
16-02099-04	DO	014	02/18/16 12:10	2/19/2016	3/17/2016	16-02099	Uranium-234	EML U-02 Modified	1.71E+00	8.42E-01	8.51E-01	5.63E-01	pCi/l
16-02099-01	LCS	SPIKE	02/23/16 00:00	2/19/2016	3/17/2016	16-02099	Uranium-235	EML U-02 Modified	3.87E-01	1.67E-01	1.69E-01	1.01E-01	pCi/l
16-02099-02	MBL	BLANK	02/23/16 00:00	2/19/2016	3/17/2016	16-02099	Uranium-235	EML U-02 Modified	4.96E-02	6.00E-02	6.01E-02	7.31E-02	pCi/l
16-02099-03	DUP	014	02/18/16 12:10	2/19/2016	3/17/2016	16-02099	Uranium-235	EML U-02 Modified	1.77E-01	2.46E-01	2.46E-01	3.73E-01	pCi/l
16-02099-04	DO	014	02/18/16 12:10	2/19/2016	3/17/2016	16-02099	Uranium-235	EML U-02 Modified	3.26E-01	4.68E-01	4.69E-01	7.64E-01	pCi/l
16-02099-01	LCS	KNOWN	02/23/16 00:00	2/19/2016	3/17/2016	16-02099	Uranium-238	EML U-02 Modified	7.05E+00	2.54E-01			pCi/l
16-02099-01	LCS	SPIKE	02/23/16 00:00	2/19/2016	3/17/2016	16-02099	Uranium-238	EML U-02 Modified	5.71E+00	8.38E-01	9.32E-01	6.49E-02	pCi/l
16-02099-02	MBL	BLANK	02/23/16 00:00	2/19/2016	3/17/2016	16-02099	Uranium-238	EML U-02 Modified	6.59E-02	6.28E-02	6.29E-02	6.76E-02	pCi/l
16-02099-03	DUP	014	02/18/16 12:10	2/19/2016	3/17/2016	16-02099	Uranium-238	EML U-02 Modified	8.30E-01	4.63E-01	4.67E-01	4.08E-01	pCi/l
16-02099-04	DO	014	02/18/16 12:10	2/19/2016	3/17/2016	16-02099	Uranium-238	EML U-02 Modified	8.57E-01	5.97E-01	6.00E-01	5.60E-01	pCi/l
16-02099-04	TRG	014	02/18/16 12:10	2/19/2016	2/24/2016	16-02099	TDS	SM 2540C	8.18E+03				mg/l
16-02099-04	TRG	014	02/18/16 12:10	2/19/2016	2/24/2016	16-02099	TSS	SM 2540D	6.53E+04				mg/l

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

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Calculation of Discharged Activity
Bridgeton Landfill, LLC - Discharge Permit No. 1003803000 - 1

In accordance with Special Condition II.C.3 of the Bridgeton Landfill, LLC Hauled and Industrial Wastewater Discharge Permit (Permit No. 1003803000 - 1), each of the facility's quarterly self-monitoring reports shall specify the activity by radionuclide that is discharged to the Metropolitan St. Louis Sewer District (MSD) system during the reporting period. The methodology that was utilized to calculate the activity discharged from the Bridgeton Landfill during the first quarter of 2016 is described below. A separate calculation is utilized to determine the activity by radionuclide that is hauled to MSD facilities during the reporting period (see **Attachment 5**).

The discharged activity for each radionuclide is determined by multiplying the activity concentration for the reporting period by the total volume that was discharged during the reporting period:

Discharged Activity = Activity Concentration × Discharged Volume

As presented in laboratory analytical report 16-01147-OR provided in **Attachment 3**, Eberline Services (Eberline) reported the following radionuclide activity concentrations from the composite samples collected on January 26th – 27th, 2016 from leachate sampling point 013:

Constituent	Result	Units
Gross Alpha	< MDA	pCi/L
Gross Beta	220 ± 89	pCi/L
Gross Gamma	215 ± 52	pCi/L
Radium - 226	0.48 ± 0.39	pCi/L
Radium - 228	< MDA	pCi/L
Uranium - 234	0.49 ± 0.36	pCi/L
Uranium - 235	< MDA	pCi/L
Uranium - 238	0.37 ± 0.31	pCi/L

Notes:
1 pCi = 1×10^{-12} Ci
MDA = Minimum Detectable Activity

Note that the gross gamma activity concentration presented above has been qualified by Eberline. As stated in the laboratory analytical report case narrative for Eberline analytical report 16-01147-OR (**Attachment 3**):

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Sample demonstrated acceptable results for all gamma-emitting radionuclides as reported. Results for "Gross Gamma" were derived from Potassium-40 since this is the only true positive gamma emitting radionuclide. In this case, there are no real positive gamma emitting radionuclides in these samples and most results are reported from the Canberra "non-identified" radionuclides report. The method blank demonstrated acceptable results for all radionuclides as reported.

As presented in **Attachment 6**, the following monthly volumes were discharged through leachate sampling point 013 during the first quarter of 2016:

Month	Volume Discharged (gal)
January 2016	6,363,395
February 2016	5,607,718
March 2016	5,009,031

The total volume discharged during the first quarter of 2016 is therefore:

$$6{,}363{,}395 \text{ gal} + 5{,}607{,}718 \text{ gal} + 5{,}009{,}031 \text{ gal} = 16{,}980{,}144 \text{ gal}$$

Given that activity concentration results are presented in pCi/L, the total volume discharged is converted from gallons to liters prior to the calculation of discharged activity:

$$16{,}980{,}144 \text{ gal} \times \frac{3.785 \text{ L}}{\text{gal}} = 64{,}269{,}845 \text{ L}$$

For radionuclides with reported activity concentrations greater than the MDA, the discharge activity can then be calculated as the product of the activity concentration and total volume discharged:

For Gross Beta:

$$220 \text{ pCi/L} \times 64{,}269{,}845 \text{ L} = 1.41 \times 10^{10} \text{ pCi}$$

For Gross Gamma:

$$215 \text{ pCi/L} \times 64{,}269{,}845 \text{ L} = 1.38 \times 10^{10} \text{ pCi}$$

For Radium-226:

$$0.48 \text{ pCi/L} \times 64{,}269{,}845 \text{ L} = 3.08 \times 10^{7} \text{ pCi}$$

For Uranium-234:

$$0.49 \text{ pCi/L} \times 64{,}269{,}845 \text{ L} = 3.15 \times 10^{7} \text{ pCi}$$

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For Uranium-238:

$$0.37 \text{ pCi/L} \times 64{,}269{,}845 \text{ L} = 2.38 \times 10^7 \text{ pCi}$$

(No calculation is performed for those radionuclides with reported activity concentrations less than the MDA: Gross Alpha, Radium-228, and Uranium-235.)

The individual discharge activities for Gross Beta, Gross Gamma, Radium-226, Uranium-234, and Uranium-238 are summed to determine the total discharged activity for the first quarter of 2016:

$$(1.41 \times 10^{10} \text{ pCi}) + (1.38 \times 10^{10} \text{ pCi}) + (3.08 \times 10^7 \text{ pCi}) + (3.15 \times 10^7 \text{ pCi}) + (2.38 \times 10^7 \text{ pCi}) = \mathbf{2.80 \times 10^{10} \text{ pCi}}$$

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Calculation of Hauled Activity
Bridgeton Landfill, LLC - Discharge Permit No. 1003803000 - 1

In accordance with Special Condition II.C.3 of the Bridgeton Landfill, LLC Hauled and Industrial Wastewater Discharge Permit (Permit No. 1003803000 - 1), each of the facility's quarterly self-monitoring reports shall specify the activity by radionuclide that is discharged to the Metropolitan St. Louis Sewer District (MSD) system during the reporting period. The methodology that was utilized to calculate the activity hauled from the Bridgeton Landfill during the first quarter of 2016 is described below. A separate calculation is utilized to determine the activity by radionuclide that is discharged to MSD facilities during the reporting period (see **Attachment 4**).

The hauled activity for each radionuclide is determined by multiplying the activity concentration for the reporting period by the total volume that was hauled during the reporting period:

Hauled Activity = Activity Concentration × Hauled Volume

As presented in laboratory analytical report 16-02099 provided in **Attachment 3**, Eberline Services (Eberline) reported the following radionuclide activity concentrations from the composite samples collected on February 17th – 18th, 2016 from leachate sampling point 014:

Constituent	Result	Units
Gross Alpha	R (< MDA)	pCi/L
Gross Beta	< MDA	pCi/L
Gross Gamma	269 ± 62	pCi/L
Radium - 226	< MDA	pCi/L
Radium - 228	< MDA	pCi/L
Uranium - 234	1.71 ± 0.85	pCi/L
Uranium - 235	< MDA	pCi/L
Uranium - 238	0.86 ± 0.60	pCi/L

Notes:
1 pCi = 1×10^{-12} Ci
MDA = Minimum Detectable Activity
R (< MDA) = Sample result rejected by laboratory;
Laboratory duplicate result was < MDA

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Note that the Gross Alpha and Gross Gamma activity concentrations presented above have been qualified by Eberline. As stated in the laboratory analytical report case narrative for Eberline analytical report 16-02099-OR (**Attachment 3**):

For Gross Alpha:

> *In the case of this sample, Gross Alpha results are non-quantifiable and should be qualified as rejected (R).*

For Gross Gamma:

> *Sample demonstrated acceptable results for Potassium-40 activity. All other gamma emitting radionuclides as reported are from the Canberra Gamma Apex "Nuclide MDA Report" and were not detected. All other* (Gross Gamma) *results should be qualified as non-detect (U). Due to this condition, there is no correlation between Uranium and Thorium series radionuclides versus chemistry results for Radium-226, Isotopic Uranium and Radium-228. Results for "Gross Gamma" were derived from Potassium-40 since this is the only true positive gamma emitting radionuclide.*

As presented in **Attachment 6**, the following monthly volumes were hauled (leachate sampling point 014) from the facility during the first quarter of 2016:

Month	Volume Discharged (gal)
January 2016	0
February 2016	1,612,500
March 2016	2,872,500

The total volume discharged during the first quarter of 2016 is therefore:

$$0 \text{ gal} + 1{,}612{,}500 \text{ gal} + 2{,}872{,}500 \text{ gal} = 4{,}485{,}000 \text{ gal}$$

Given that activity concentration results are presented in pCi/L, the total volume discharged is converted from gallons to liters prior to the calculation of discharged activity:

$$4{,}485{,}000 \text{ gal} \times \frac{3.785 \text{ L}}{\text{gal}} = 16{,}975{,}725 \text{ L}$$

For radionuclides with reported activity concentrations greater than the MDA, the hauled activity can then be calculated as the product of the activity concentration and total volume hauled:

For Gross Gamma:

$$269 \text{ pCi/L} \times 16{,}975{,}725 \text{ L} = 4.57 \times 10^9 \text{ pCi}$$

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For Uranium-234:

$$1.71 \text{ pCi/L} \times 16{,}975{,}725 \text{ L} = 2.90 \times 10^7 \text{ pCi}$$

For Uranium-238:

$$0.86 \text{ pCi/L} \times 16{,}975{,}725 \text{ L} = 1.46 \times 10^7 \text{ pCi}$$

(No calculation is performed for those radionuclides with reported activity concentrations less than the MDA: Gross Alpha, Gross Beta, Radium-226, Radium-228, and Uranium-235.)

The individual discharge activities for Gross Gamma, Uranium-234, and Uranium-238 are then summed to determine the total discharged activity for the first quarter of 2016:

$$(4.57 \times 10^9 \text{ pCi}) + (2.90 \times 10^7 \text{ pCi}) + (1.46 \times 10^7 \text{ pCi}) = \mathbf{4.61 \times 10^9 \text{ pCi}}$$

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January 2016		
Date	Reported Discharge	Hauled Wastewater
01/01/2016	223,913	0
01/02/2016	230,252	0
01/03/2016	234,174	0
01/04/2016	230,443	0
01/05/2016	208,330	0
01/06/2016	215,165	0
01/07/2016	236,913	0
01/08/2016	238,713	0
01/09/2016	241,600	0
01/10/2016	137,669	0
01/11/2016	157,904	0
01/12/2016	210,556	0
01/13/2016	205,669	0
01/14/2016	196,989	0
01/15/2016	190,336	0
01/16/2016	179,882	0
01/17/2016	172,035	0
01/18/2016	236,249	0
01/19/2016	160,791	0
01/20/2016	190,078	0
01/21/2016	154,182	0
01/22/2016	206,356	0
01/23/2016	206,721	0
01/24/2016	214,389	0
01/25/2016	231,576	0
01/26/2016	225,369	0
01/27/2016	228,130	0
01/28/2016	234,445	0
01/29/2016	132,193	0
01/30/2016	212,608	0
01/31/2016	219,765	0
Totals:	**6,363,395**	**0**

Note: Daily values provided by Civil & Environmental Consultants, Inc.

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February 2016		
Date	Reported Discharge	Hauled Wastewater
02/01/2016	285,733	0
02/02/2016	247,109	0
02/03/2016	197,299	0
02/04/2016	122,008	0
02/05/2016	247,947	0
02/06/2016	250,451	0
02/07/2016	238,753	0
02/08/2016	228,159	0
02/09/2016	208,627	0
02/10/2016	201,423	0
02/11/2016	208,468	0
02/12/2016	269,608	0
02/13/2016	276,673	0
02/14/2016	320,591	0
02/15/2016	312,300	0
02/16/2016	315,060	0
02/17/2016	309,134	0
02/18/2016	317,068	0
02/19/2016	325,289	0
02/20/2016	320,343	0
02/21/2016	209,459	0
02/22/2016	196,216	0
02/23/2016	0	247,500
02/24/2016	0	210,000
02/25/2016	0	240,000
02/26/2016	0	247,500
02/27/2016	0	247,500
02/28/2016	0	247,500
02/29/2016	0	172,500
Totals:	**5,607,718**	**1,612,500**

Note: Daily values provided by Civil & Environmental Consultants, Inc.

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March 2016		
Date	Reported Discharge	Hauled Wastewater
03/01/2016	0	247,500
03/02/2016	0	247,500
03/03/2016	0	232,500
03/04/2016	111,161	232,500
03/05/2016	173,682	240,000
03/06/2016	161,697	247,500
03/07/2016	162,329	0
03/08/2016	207,616	0
03/09/2016	240,488	0
03/10/2016	234,967	0
03/11/2016	110,890	0
03/12/2016	0	292,500
03/13/2016	0	262,500
03/14/2016	0	217,500
03/15/2016	0	210,000
03/16/2016	236,584	217,500
03/17/2016	159,264	112,500
03/18/2016	161,064	0
03/19/2016	215,321	0
03/20/2016	205,490	0
03/21/2016	239,370	112,500
03/22/2016	236,600	0
03/23/2016	227,760	0
03/24/2016	195,603	0
03/25/2016	219,060	0
03/26/2016	227,564	0
03/27/2016	252,198	0
03/28/2016	249,303	0
03/29/2016	249,571	0
03/30/2016	254,439	0
03/31/2016	277,010	0
Totals:	**5,009,031**	**2,872,500**

Note: Daily values provided by Civil & Environmental Consultants, Inc.

RECEIVED

APR 28 2016

DIVISION OF
ENVIRONMENTAL COMPLIANCE

Doug Mendoza Bridgeton Landfill

From: Fanning, Erin <EFanning@republicservices.com>
Sent: Friday, April 15, 2016 11:46 AM
To: Doug Mendoza
Cc: Graves, Stephen; Kamp, Kevin; Power, Brian; Jonathan Wilkinson (jwilkinson@feezorengineering.com); Kevin O'Leary
Subject: Permit No. 1003803000-1 monthly volume discharge report
Attachments: 4337 MSD Monthly Discharge Report (03-2016).xlsx

Good morning Doug,

It was very nice to meet you earlier this week, and I look forward to working with you in the future. In accordance with Section II, Conditions D.2 and D.3 of Permit No. 1003803000-1, attached please find the March 2016 monthly volume of wastewater discharged from the Bridgeton pretreatment plant. Thank you very much for your time, have an amazing weekend, and please do not hesitate to contact me with any questions.

Kindest regards,

Erin Fanning
Environmental Manager

Bridgeton Landfill, LLC.
13570 Saint Charles Rock Road
Bridgeton, MO 63044
Cell: (209) 227-9531

Bridgeton Landfill Pretreatment Facility - Permit #1003803000 -1.2
Monthly Discharge Report

Date	**Discharge** Sample Point **013**	**Hauled** (gallons) Sample Point **014**	**Forcemain flush water**
3/1/2016	0	247500	0
3/2/2016	0	247500	0
3/3/2016	0	232500	0
3/4/2016	111161	232500	0
3/5/2016	173682	240000	0
3/6/2016	161697	247500	0
3/7/2016	162329	0	0
3/8/2016	207616	0	0
3/9/2016	240488	0	0
3/10/2016	234967	0	0
3/11/2016	110890	0	0
3/12/2016	0	292500	0
3/13/2016	0	262500	0
3/14/2016	0	217500	0
3/15/2016	0	210000	0
3/16/2016	236584	217500	0
3/17/2016	159264	112500	0
3/18/2016	161064	0	0
3/19/2016	215321	0	0
3/20/2016	205490	0	0
3/21/2016	239370	112500	0
3/22/2016	236600	0	0
3/23/2016	227760	0	0
3/24/2016	195603	0	0
3/25/2016	219060	0	0
3/26/2016	227564	0	0
3/27/2016	252198	0	0
3/28/2016	249303	0	0
3/29/2016	249571	0	0
3/30/2016	254439	0	0
3/31/2016	277010	0	0

Comments:
Sample Point 013 is using an Emerson calibrated flow meter at the discharge location.
New meters were installed along with the upgrades to piping at the discharge. Those new meters will b
Sample point 014 utilized hauling from 03/01/2016 through 03/21/2016 as a means for liquid level red

DM

Doug Mendoza

Bridgeton Landfill

From: Graves, Stephen <sgraves@cecinc.com>
Sent: Wednesday, April 13, 2016 10:27 AM
To: Doug Mendoza
Cc: Erin Fanning (EFanning@republicservices.com); Kamp, Kevin
Subject: Hauling results from 3/5/16 to date

Doug,

Here's the remainder of the analyses from hauling in March

Date	BOD5	COD	Soluble COD	TSS
3/5/2016	<1200	6200	1900	9500
3/6/2016	<1200	7100	7800	11000
3/12/2016	65	4400	1800	6200
3/13/2016	180	5300	1700	7900
3/14/2016	65	3400	2000	4200
3/15/2016	71	3500	1900	3900
3/16/2016	42	3100	1900	2900
3/17/2016	30	2700	2100	2500
3/21/2016	97	3100	2100	3100

Stephen E. Graves, P.E. / Senior Project Manager
Civil & Environmental Consultants, Inc.
4848 Park 370 Blvd., Suite F · Hazelwood, MO 63042
Toll-Free: (866) 250-3679 · Fax: (314) 656-4595
Mobile: (314) 330-7512 · http://www.cecinc.com
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From: Graves, Stephen
Sent: Friday, March 11, 2016 2:07 PM
To: 'Doug Mendoza'
Cc: LaFata, Natalie (nlafata@cecinc.com); Erin Fanning (EFanning@republicservices.com); Kamp, Kevin (kkamp@cecinc.com)
Subject: RE: Natalie or Steve - I need to get whatever BOD5 results you have so far for the hauled leachate. Please include it in a table with the COD and TSS results.

Doug,

Here are all of the analyses of the samples from hauling prior to today.

Date	BOD5	COD	Soluble COD	TSS	pH

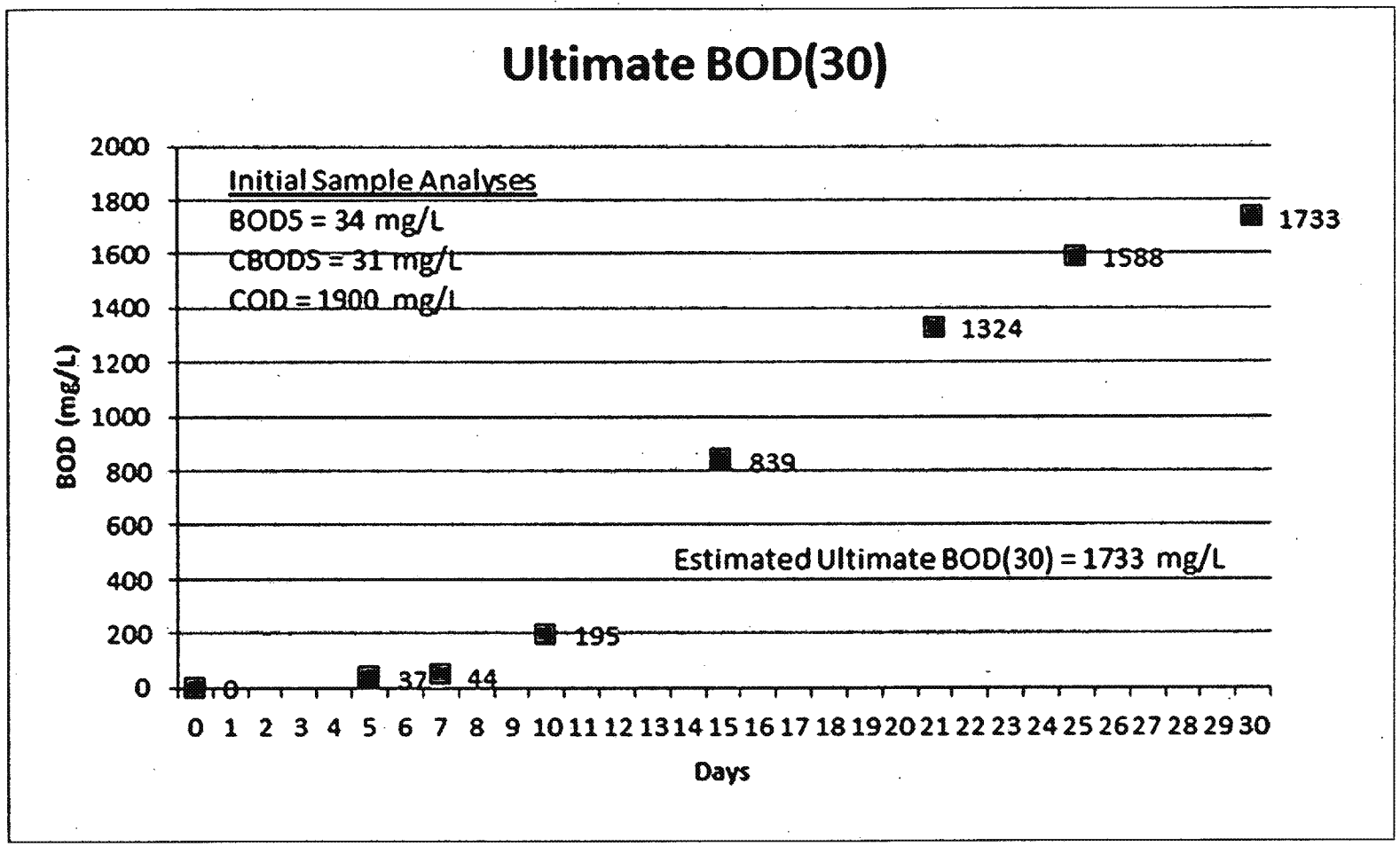
MSD 033735

Doug Mendoza

From: Graves, Stephen <sgraves@cecinc.com>
Sent: Tuesday, April 12, 2016 8:10 AM
To: Doug Mendoza
Cc: Erin Fanning (EFanning@republicservices.com); Kamp, Kevin
Subject: Ultimate BOD

Doug,

The graph below is a plot of the data which I received from PDC laboratories who performed the Ultimate BOD test. I requested the data be sent to me for evaluation after I spoke with Wayne Cooper and realized that he didn't know how to evaluate it. After having spent a good amount of time looking and unsuccessfully trying to understand the data I had another conversation with Wayne and from this conversation I was able to come to better conclusions about what he had sent me.



- The test was performed in 300 mL BOD bottles but instead of utilizing one bottle for each day's measurement during the test they used only one set of 300 mL BOD bottles.
- The initial DO was measured in each bottle then each bottle was re-opened and the DO measured on the specified days, the bottle was re-stoppered and put back into the incubator. Oxygen contamination was noted in the sample bottles on more than one occasion, this contamination was detected by noting the DO in the next measurement was higher than that on the previous day.
- There was no nitrification inhibitor used as specified in Standard Methods, the nitrate, nitrite, and ammonia were never measured so the nitrogenous BOD could not be subtracted from the total BOD to allow for the determination of Ultimate Carbonaceous BOD as requested.

We recommend that the test be repeated following all details of the procedure for Ultimate BOD as outlined in Standard Methods (attached) and we would like to use REIC Laboratory in Beckley, WV as they have successfully performed this test for me in the past. Their information is below.

If you have any questions please call.

Thanks,

Steve

REI Consultants, Inc. (Corporate Headquarters)
P.O. Box 286
225 Industrial Park Road, Beaver, WV 25813
800-999-0105
304-255-2500
304-255-2572 (fax)
http://www.reiclabs.com
info@reiclabs.com

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4848 Park 370 Blvd., Suite F · Hazelwood, MO 63042
Toll-Free: (866) 250-3679 · Direct: (314) 447-3629 · Fax: (314) 656-4595
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MSD 033737

1

Doug Mendoza Bridgeton Landfill

From: LaFata, Natalie <nlafata@cecinc.com>
Sent: Wednesday, April 06, 2016 9:41 AM
To: Art Middleton; Bob Meppiel; Bret A. Berthold; Catherine Politte; Doug Mendoza; Dean Sentman; Jay Kniker; Jeff Jones; John Lawson; John Lodderhose; John Welch; Jonathon Sprague; Kevin George; Kim Osterloh; Lance LeComb; Mark Bright; Mike Waxman; Rob G Daly; Sean Hadley
Cc: Graves, Stephen
Subject: Bridgeton LPTP Contact update

I want to inform you that I will no longer be working for CEC at the Bridgeton Landfill after Friday, April 8th, 2016. My personal cell # is [redacted] and my personal email is [redacted] I will still be in the StL area and will likely see some of you folks at future wastewater seminars and events ☺

You're contact for the treatment plant is Steve Graves. His cell phone # is (314) 330-7512 and I have included him on this correspondence so you can save his email.

Please feel free to contact me with any questions, if you have any, after I have left.
Thank you for being wonderful to work with!

Natalie L. La Fata / Plant Manager
Civil & Environmental Consultants, Inc.
4848 Park 370 Blvd., Suite F · Hazelwood, MO 63042
Toll Free: (866) 250-3679 ext. 3627 · Fax: (314) 656-4595
Mobile: (314) 341-3375 · http://www.cecinc.com
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1053803000
Bridgeton Landfill

Doug Mendoza

From: Paceport Email Notification <carin.ferris@pacelabs.com>
Sent: Wednesday, March 30, 2016 6:55 PM
To: Doug Mendoza; carin.ferris@pacelabs.com
Subject: Bridgeton Landfill (Pace Project # 30176147)
Attachments: 30176147_frc.pdf

CB
4-06

Paceport Login

Pace Automated Email Notification

This email contains EDDs and Reports generated by Paceport's automated deliverable service. The attached files have been authorized to be sent to you due to the completion of project Bridgeton Landfill (Pace Project # 30176147). Your Pace project manager has been CC'ed on this email so that you may request any further assistance.

To access this project's page in paceport click on the following link.
http://paceport.pacelabs.com/ClientPortal/mvc/projectDetails/modelAndView?projectID=30176147&systemID=lims30

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Pace Analytical Services, Inc.
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

March 30, 2016

Doug Mendoza
Metropolitan St. Louis Sewer District
10 Grand Avenue
Saint Louis, MO 63147

RE: Project: Bridgeton Landfill
Pace Project No.: 30176147

Dear Doug Mendoza:
Enclosed are the analytical results for sample(s) received by the laboratory on March 11, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Carin A. Ferris

Carin Ferris
carin.ferris@pacelabs.com
Project Manager

Enclosures

REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Bridgeton Landfill
Pace Project No.: 30176147

Pennsylvania Certification IDs
Georgia Certification #: C040
1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
L-A-B DOD-ELAP Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH-0694
Delaware Certification
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: 90133
Louisiana DHH/TNI Certification #: LA140008
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: PA00091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
Nebraska Certification #: NE-05-29-14
Nevada Certification #: PA014572015-1
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188-14-8
Utah/TNI Certification #: PA014572015-5
USDA Soil Permit #: P330-14-00213
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Certification
Wyoming Certification #: 8TMS-L

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SAMPLE SUMMARY

Project: Bridgeton Landfill
Pace Project No.: 30176147

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30176147001	**Bridgeton Landfill**	Water	03/08/16 10:13	03/11/16 10:10

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SAMPLE ANALYTE COUNT

Project: Bridgeton Landfill
Pace Project No.: 30176147

Lab ID	Sample ID	Method	Analysts	Analytes Reported
30176147001	**Bridgeton Landfill**	EPA 900.0	NEG	2
		EPA 901.1	MAH	11
		EPA 903.1	WRR	1
		EPA 904.0	JAL	1
		ASTM D5174-97	RMK	1
		HSL-300	LAL	4

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Bridgeton Landfill
Pace Project No.: 30176147

Method: **EPA 900.0**
Description: 900.0 Gross Alpha/Beta
Client: Metropolitan St. Louis Sewer District
Date: March 30, 2016

General Information:
1 sample was analyzed for EPA 900.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Bridgeton Landfill
Pace Project No.: 30176147

Method: **EPA 901.1**
Description: 901.1 Gamma Spec
Client: Metropolitan St. Louis Sewer District
Date: March 30, 2016

General Information:
1 sample was analyzed for EPA 901.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Bridgeton Landfill
Pace Project No.: 30176147

Method: **EPA 903.1**
Description: 903.1 Radium 226
Client: Metropolitan St. Louis Sewer District
Date: March 30, 2016

General Information:
1 sample was analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Bridgeton Landfill
Pace Project No.: 30176147

Method: **EPA 904.0**
Description: 904.0 Radium 228
Client: Metropolitan St. Louis Sewer District
Date: March 30, 2016

General Information:
1 sample was analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Bridgeton Landfill
Pace Project No.: 30176147

Method: **ASTM D5174-97**
Description: D517497 Total Uranium KPA
Client: Metropolitan St. Louis Sewer District
Date: March 30, 2016

General Information:
1 sample was analyzed for ASTM D5174-97. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Bridgeton Landfill
Pace Project No.: 30176147

Method: **HSL-300**
Description: HSL300(AS) Actinides
Client: Metropolitan St. Louis Sewer District
Date: March 30, 2016

General Information:
1 sample was analyzed for HSL-300. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: RADC/28426

N2: The lab does not hold TNI accreditation for this parameter.

- BLANK (Lab ID: 1040720)
  - Thorium-230
  - Uranium-234
  - Uranium-235
  - Uranium-238
- Bridgeton Landfill (Lab ID: 30176147001)
  - Thorium-230
  - Uranium-234
  - Uranium-235
  - Uranium-238

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Bridgeton Landfill
Pace Project No.: 30176147

Sample: Bridgeton Landfill **Lab ID: 30176147001** Collected: 03/08/16 10:13 Received: 03/11/16 10:10 Matrix: Water
PWS: Site ID: Sample Type:

Comments: • The collection date and time are not indicated on the sample containers.
• Upon receipt at the laboratory, 12 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0	**19.3 ± 23.9 (43.2) C:NA T:NA**	pCi/L	03/22/16 19:53	12587-46-1	
Gross Beta	EPA 900.0	**111 ± 26.2 (23.9) C:NA T:NA**	pCi/L	03/22/16 19:53	12587-47-2	
Actinium-228	EPA 901.1	**20.786 ± 16.194 (15.400) C:NA T:NA**	pCi/L	03/16/16 15:44	14331-83-0	
Bismuth-212	EPA 901.1	**8.203 ± 59.839 (58.940) C:NA T:NA**	pCi/L	03/16/16 15:44	14913-49-6	
Bismuth-214	EPA 901.1	**136.730 ± 19.077 (10.000) C:NA T:NA**	pCi/L	03/16/16 15:44	14733-03-0	
Lead-212	EPA 901.1	**30.203 ± 7.755 (8.678) C:NA T:NA**	pCi/L	03/16/16 15:44	15092-94-1	
Lead-214	EPA 901.1	**144.100 ± 20.079 (11.190) C:NA T:NA**	pCi/L	03/16/16 15:44	15067-28-4	
Potassium-40	EPA 901.1	**229.960 ± 64.824 (58.310) C:NA T:NA**	pCi/L	03/16/16 15:44	13966-00-2	
Radium-226	EPA 901.1	**185.310 ± 79.571 (87.320) C:NA T:NA**	pCi/L	03/16/16 15:44	13982-63-3	
Radium-228	EPA 901.1	**20.786 ± 16.194 (15.400) C:NA T:NA**	pCi/L	03/16/16 15:44	15262-20-1	
Thallium-208	EPA 901.1	**0.000 ± 2.644 (5.569) C:NA T:NA**	pCi/L	03/16/16 15:44	14913-50-9	
Thorium-234	EPA 901.1	**71.349 ± 126.490 (147.500) C:NA T:NA**	pCi/L	03/16/16 15:44	15065-10-8	
Uranium-235	EPA 901.1	**1.843 ± 27.504 (31.630) C:NA T:NA**	pCi/L	03/16/16 15:44	15117-96-1	
Radium-226	EPA 903.1	**0.000 ± 0.270 (0.604) C:NA T:88%**	pCi/L	03/24/16 20:52	13982-63-3	
Radium-228	EPA 904.0	**0.0671 ± 0.371 (0.855) C:58% T:87%**	pCi/L	03/25/16 15:54	15262-20-1	
Total Uranium	ASTM D5174-97	**1.49 ± 0.064 (1.927) C:NA T:NA**	ug/L	03/30/16 19:12	7440-61-1	
Thorium-230	HSL-300	**0.092 ± 0.303 (0.476) C:NA T:56%**	pCi/L	03/17/16 13:10	14269-63-7	N2
Uranium-234	HSL-300	**-0.001 ± 0.240 (0.585) C:NA T:73%**	pCi/L	03/17/16 13:04	13966-29-5	N2
Uranium-235	HSL-300	**0.164 ± 0.306 (0.480) C:NA T:73%**	pCi/L	03/17/16 13:04	15117-96-1	N2
Uranium-238	HSL-300	**0.236 ± 0.256 (0.367) C:NA T:73%**	pCi/L	03/17/16 13:04		N2

Gross Gamma } 767.875
U-nat <0.585

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, Inc.
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Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL - RADIOCHEMISTRY

Project: Bridgeton Landfill
Pace Project No.: 30176147

QC Batch: RADC/28407
QC Batch Method: EPA 903.1
Analysis Method: EPA 903.1
Analysis Description: 903.1 Radium-226
Associated Lab Samples: 30176147001

METHOD BLANK: 1040238
Matrix: Water
Associated Lab Samples: 30176147001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.000 ± 0.272 (0.439) C:NA T:86%	pCi/L	03/24/16 19:23	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL - RADIOCHEMISTRY

Project: Bridgeton Landfill
Pace Project No.: 30176147

QC Batch: RADC/28414
QC Batch Method: EPA 904.0
Analysis Method: EPA 904.0
Analysis Description: 904.0 Radium 228
Associated Lab Samples: 30176147001

METHOD BLANK: 1040247
Matrix: Water
Associated Lab Samples: 30176147001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	-0.157 ± 0.304 (0.746) C:81% T:82%	pCi/L	03/25/16 15:53	

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Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL - RADIOCHEMISTRY

Project: Bridgeton Landfill
Pace Project No.: 30176147

QC Batch: RADC/28445
QC Batch Method: EPA 901.1
Analysis Method: EPA 901.1
Analysis Description: 901.1 Gamma Spec
Associated Lab Samples: 30176147001

METHOD BLANK: 1040975
Matrix: Water
Associated Lab Samples: 30176147001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Actinium-228	13.704 ± 9.904 (10.290) C:NA T:NA	pCi/L	03/15/16 14:02	
Bismuth-212	26.746 ± 51.255 (53.920) C:NA T:NA	pCi/L	03/15/16 14:02	
Bismuth-214	3.532 ± 10.524 (11.690) C:NA T:NA	pCi/L	03/15/16 14:02	
Lead-212	0.000 ± 4.327 (9.148) C:NA T:NA	pCi/L	03/15/16 14:02	
Lead-214	0.574 ± 9.094 (10.940) C:NA T:NA	pCi/L	03/15/16 14:02	
Potassium-40	0.000 ± 18.140 (68.980) C:NA T:NA	pCi/L	03/15/16 14:02	
Radium-226	29.471 ± 80.938 (105.700) C:NA T:NA	pCi/L	03/15/16 14:02	
Radium-228	13.704 ± 9.904 (10.290) C:NA T:NA	pCi/L	03/15/16 14:02	
Thallium-208	0.257 ± 3.866 (4.618) C:NA T:NA	pCi/L	03/15/16 14:02	
Thorium-234	87.320 ± 296.350 (380.600) C:NA T:NA	pCi/L	03/15/16 14:02	
Uranium-235	9.628 ± 25.649 (32.240) C:NA T:NA	pCi/L	03/15/16 14:02	

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Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL - RADIOCHEMISTRY

Project: Bridgeton Landfill
Pace Project No.: 30176147

QC Batch: RADC/28533
QC Batch Method: EPA 900.0
Analysis Method: EPA 900.0
Analysis Description: 900.0 Gross Alpha/Beta
Associated Lab Samples: 30176147001

METHOD BLANK: 1044682
Matrix: Water
Associated Lab Samples: 30176147001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Gross Alpha	-0.137 ± 0.434 (1.40) C:NA T:NA	pCi/L	03/23/16 07:19	
Gross Beta	-0.412 ± 0.677 (1.85) C:NA T:NA	pCi/L	03/23/16 07:19	

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Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL - RADIOCHEMISTRY

Project: Bridgeton Landfill
Pace Project No.: 30176147

QC Batch: RADC/28420
QC Batch Method: ASTM D5174-97
Analysis Method: ASTM D5174-97
Analysis Description: D5174.97 Total Uranium KPA
Associated Lab Samples: 30176147001

METHOD BLANK: 1040401
Matrix: Water
Associated Lab Samples: 30176147001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Total Uranium	0.112 ± 0.005 (0.193) C:NA T:NA	ug/L	03/23/16 12:56	

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Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL - RADIOCHEMISTRY

Project: Bridgeton Landfill
Pace Project No.: 30176147

QC Batch: RADC/28426
QC Batch Method: HSL-300
Analysis Method: HSL-300
Analysis Description: HSL300(AS) Actinides
Associated Lab Samples: 30176147001

METHOD BLANK: 1040720
Matrix: Water
Associated Lab Samples: 30176147001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Thorium-230	0.005 ± 0.067 (0.119) C:NA T:82%	pCi/L	03/18/16 06:58	N2
Uranium-234	0.040 ± 0.081 (0.112) C:NA T:97%	pCi/L	03/18/16 06:58	N2
Uranium-235	0.029 ± 0.105 (0.079) C:NA T:97%	pCi/L	03/18/16 06:58	N2
Uranium-238	0.012 ± 0.081 (0.133) C:NA T:97%	pCi/L	03/18/16 06:58	N2

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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Greensburg, PA 15601
(724)850-5600

QUALIFIERS

Project: Bridgeton Landfill
Pace Project No.: 30176147

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval). Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

N2 The lab does not hold TNI accreditation for this parameter.

REPORT OF LABORATORY ANALYSIS

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Pace Analytical®
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: of

1779939

Section A Required Client Information:

Company:	MSD
Address:	10 E. Grand
	St. Louis, MO 63147
Email To:	dmendoza@stlmsd.com
Phone: 314-436-8717	Fax: 314-436-8753
Requested Due Date/TAT:	

Section B Required Project Information:

Report To:	Mr. Doug Mendoza
Copy To:	
Purchase Order No.:	
Project Name:	
Project Number:	

Section C Invoice Information:

Attention:	
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	
Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☑ OTHER Wastewater

Site Location STATE: ______

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Matrix Codes MATRIX / CODE: Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Tissue TS, Other OT

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test	Radium-226 (N)	Radium-228 (N)	Gross Alpha (N)	Gross Beta (N)	Gross Gamma (N)	Uranium Natural (N)	Thorium-230 (N)	Uranium (ug/l) (N)				See Attachment	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D. 30176147
1	Bridgeton Landfill	OT	C	3-7-16	10:25	3-8-16	10:13		5			X																				001
2																																
3																																
4																																
5																																
6																																
7																																
8																																
9																																
10																																
11																																
12																																

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	[signature]	3/8/16	14:30	Alyna B Muchoney / Pace	3/11/16	1010	N/A	N	N	Y
							Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Jason Edwards

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 03/08/2016

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Brian G. Gibson

The particular radioactivity/radionuclides we need tested for each set are:

- Radium-226 (pci/L)
- Radium-228 (pci/L)
- Gross Alpha (pci/L)
- Gross Beta (pci/L)
- Gross Gamma (pci/L)
  - Consisting of
    - Actinium-228 (pci/L)
    - Bismuth-212 (pci/L)
    - Bismuth-214 (pci/L)
    - Lead-212 (pci/L)
    - Lead-214 (pci/L)
    - Potassium-40 (pci/L)
    - Radium-226 (pci/L)
    - Radium-228 (pci/L)
    - Thallium-208 (pci/L)
    - Thorium-234 (pci/L)
    - Uranium-235 (pci/L)
- Uranium-natural (pci/L)
  - Consisting of
    - Uranium-234 (pci/L)
    - Uranium-235 (pci/L)
    - Uranium-238 (pci/L)
  - I understand that you likely will simply analyze for the three isotopes, and MSD itself will sum them for the U-natural total
- **Thorium-230 (pci/L)**
  - **This is a new one we just added**
- Uranium, in concentration(ug/L)

Brian Gibson
Metropolitan St. Louis Sewer District
Division of Environmental Compliance
10 East Grand Avenue
St. Louis, MO 63147-2913
(314) 436-8784
bgibson@stlmsd.com

Sample Condition Upon Receipt

30176147

Pace Analytical

Client Name: MSD

Project #

Courier: ☐ Fed Ex ☑ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other

Tracking #: 1Z2V16R03950210 22

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☐ no Biological Tissue is Frozen: Yes No

Packing Material: Bubble Wrap ✓ Bubble Bags ___ None ___ Other: ___

Thermometer Used NA Type of Ice: Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temp.: Observed Temp.: ___ °C Correction Factor: ___ °C Final Temp: ___ °C

Date and initials of person examining contents: ARM 3/11/16

Temp should be above freezing to 6°C

		Comments:
Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☑Yes ☐No ☐N/A	6.
Rush Turn Around Time Requested:	☑Yes ☐No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12. No date time on bottles
-Includes date/time/ID/Analysis Matrix: WT		
All containers needing preservation have been checked.	☑Yes ☐No ☐N/A	13. added 12mL HNO3 to each bottle pH L2. ARM. 3/11/16 2033
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes ☐No ☐N/A	
exceptions: VOA, coliform, TOC, O&G, Phenols	☐Yes ☐No	Initial when completed ARM Lot # of added preservative PL16-0206
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☑N/A	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☐N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: ___ Date/Time: ___

Comments/ Resolution: ___

Project Manager Review: [signature] **Date:** 3/14/16

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Caroline DEHNR Certification Office (I.e out of hold, incorrect preservative, out of temp, incorrect containers)

30176147

page 2

Project Number:

Client Name: MSD

Pace Analytical

Item No.	1	2	3	4	5	6	7	8	9	10	11	12
Matrix Code	WT											
Glass Jar (120 / 250 / 500 / 1L)												
Soil Kit (2 SB, 1M, soil jar)												
Chemistry (250 / 500 / 1L)												
Organics (1L)												
Nutrient (250 / 500)												
Phenolics (250 ml)												
TOC (40 ml / 250 ml)												
TOX (250 ml)												
Total Metals												
Dissolved Metals preserved Y N												
O & G (1L)												
TPH (1L)												
VOA (40 ml 30 ml)												
Cyanide (250 ml)												
Sulfide (500 ml)												
Bacteria (120 ml)												
Wipes / swipe/ smear/ filter												
Radchem Nalgene (125 / 250 / 500 / 1L)	6											
Radchem Nalgene (1/2 gal. / 1 gal.L)												
Cubitainer (500 ml / 4L)												
Ziploc												
Other												
Other												
Other												

SCURF Back (C016-4 15May2012).xls

Doug Mendoza

Bridgeton Landfill

From: Doug Mendoza
Sent: Friday, March 11, 2016 2:36 PM
To: 'LaFata, Natalie'
Cc: Kamp, Kevin; Graves, Stephen; Koziatek, Dan; nathan.winton@mrbults.com; Erin Fanning
Subject: RE: Weekend

Okay. The station will be staffed. I will need the same BOD/COD/TSS parameters analyzed for each day as before, but don't need a result prior to hauling.

Doug Mendoza
MSD Industrial Pretreatment Manager

From: LaFata, Natalie [mailto:nlafata@cecinc.com]
Sent: Friday, March 11, 2016 2:34 PM
To: Doug Mendoza
Cc: Kamp, Kevin; Graves, Stephen; Koziatek, Dan; nathan.winton@mrbults.com; Erin Fanning
Subject: Re: Weekend

Doug I'd like to set up for OT Saturday and Sunday at the haul station 4am-7pm and also Monday evening OT (7am start on Monday).

Natalie L. La Fata / Plant Manager
Civil & Environmental Consultants, Inc.
Mobile: (314) 341-3375 · http://www.cecinc.com
Sent from my iPhone

On Mar 11, 2016, at 2:15 PM, Doug Mendoza <DMENDOZA@stlmsd.com> wrote:

> Yes. For both Saturday and Sunday. Should I tell them to work?
>
> As for Monday, wait until 7 am? And then we can discuss further on Monday morning?
>
> ---Doug
>
> ---
>
> **From:** LaFata, Natalie [mailto:nlafata@cecinc.com]
> **Sent:** Friday, March 11, 2016 2:13 PM
> **To:** Doug Mendoza
> **Cc:** Kamp, Kevin; Graves, Stephen; Koziatek, Dan; nathan.winton@mrbults.com; Erin Fanning
> **Subject:** Re: Weekend
>
> Thx Doug! Do we have 4am-7pm covered?
>
> **Natalie L. La Fata** / Plant Manager
> Civil & Environmental Consultants, Inc.
> Mobile: (314) 341-3375 · http://www.cecinc.com
> Sent from my iPhone
>
> On Mar 11, 2016, at 2:05 PM, Doug Mendoza <DMENDOZA@stlmsd.com> wrote:

I have coverage set up, if needed. But you need to let me know so that the staff can plan accordingly. They are leaving for the day soon.

From: LaFata, Natalie [mailto:nlafata@cecinc.com]
Sent: Friday, March 11, 2016 1:57 PM
To: Doug Mendoza
Cc: Kamp, Kevin; Graves, Stephen; Koziatek, Dan; nathan.winton@mrbults.com; Erin Fanning
Subject: Weekend

Doug, can you see about hours at the haul station for Bridgeton to haul water this weekend snd get back to the group with the outcome please?

Natalie L. La Fata / Plant Manager
Civil & Environmental Consultants, Inc.
Mobile: (314) 341-3375 · http://www.cecinc.com
Sent from my iPhone

Doug Mendoza

Bridgeton Landfill

From: Graves, Stephen <sgraves@cecinc.com>
Sent: Friday, March 11, 2016 2:07 PM
To: Doug Mendoza
Cc: LaFata, Natalie; Erin Fanning (EFanning@republicservices.com); Kamp, Kevin
Subject: RE: Natalie or Steve - I need to get whatever BOD5 results you have so far for the hauled leachate. Please include it in a table with the COD and TSS results.

Doug,

Here are all of the analyses of the samples from hauling prior to today.

Date	BOD5	COD	Soluble COD	TSS	pH
2/17/2016	2000	21000	2500	38000	8.13
2/23/2016	>6000	24000	2700	40000	
2/24/2016	>6000	24000	3000	40000	
2/25/2016	>6000	21000	2600	38000	
2/26/2016	>6000	1900	2200	36000	
2/27/2016	>600	18000	2300	31000	
2/28/2016	>600	17000	2500	27000	
2/29/2016	390	16000	2200	28000	
3/1/2016	>600	3500	10000	12000	
3/2/2016	280	8600	2100	14000	
3/3/2016	230	7200	2100	12000	
3/4/2016	180	5800	1900	8900	

Stephen E. Graves, P.E. / Senior Project Manager
Civil & Environmental Consultants, Inc.
4848 Park 370 Blvd., Suite F · Hazelwood, MO 63042
Toll-Free: (866) 250-3679 · Fax: (314) 656-4595
Mobile: (314) 330-7512 · http://www.cecinc.com
Senior Leadership · Integrated Services · Personal Business Relationships

---

From: Doug Mendoza [mailto:DMENDOZA@stlmsd.com]
Sent: Friday, March 11, 2016 10:49 AM
To: LaFata, Natalie; Graves, Stephen
Subject: Natalie or Steve - I need to get whatever BOD5 results you have so far for the hauled leachate. Please include it in a table with the COD and TSS results.

Date	BOD5	COD	Soluble COD	TSS
2/17/2016	2000	21000	2500	38000
2/23/2016	>6000	24000	2700	40000
2/24/2016	>6000	24000	3000	40000
2/25/2016	>6000	21000	2600	38000
2/26/2016	>6000	1900	2200	36000
2/27/2016	>600	18000	2300	31000
2/28/2016	>600	17000	2500	27000
2/29/2016	390	16000	2200	28000
3/1/2016	>600	3500	10000	12000
3/2/2016	280	8600	2100	14000
3/3/2016	230	7200	2100	12000
3/4/2016	180	5800	1900	8900
Average		14000		27075

Doug Mendoza

Bridgeton Landfill
1003803000

From: LaFata, Natalie <nlafata@cecinc.com>
Sent: Thursday, March 10, 2016 10:08 AM
To: Doug Mendoza
Cc: Fanning, Erin; Graves, Stephen; Kamp, Kevin
Subject: 2016 Outfall Report - Permit #1003803000-1.2
Attachments: FEB2016_MSD Monthly Discharge.xlsx

Here is the February 2016 Outfall report for the Bridgeton Pretreatment Plant

Any questions, please contact me!

Natalie L. La Fata / Plant Manager
Civil & Environmental Consultants, Inc.
4848 Park 370 Blvd., Suite F · Hazelwood, MO 63042
Toll Free: (866) 250-3679 ext. 3627 · Fax: (314) 656-4595
Mobile: (314) 341-3375 · http://www.cecinc.com
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Bridgeton Landfill Pretreatment Facility - Permit #1003803000 -1.2
Monthly Discharge Report

Date	Discharge Sample Point **013**	**Hauled** (gallons) Sample Point **014**	**Forcemain flush water**
2/1/2016	285733	0	0
2/2/2016	247109	0	0
2/3/2016	197299	0	0
2/4/2016	122008	0	0
2/5/2016	247947	0	0
2/6/2016	250451	0	8500
2/7/2016	238753	0	0
2/8/2016	228159	0	0
2/9/2016	208627	0	0
2/10/2016	201423	0	0
2/11/2016	208468	0	0
2/12/2016	269608	0	0
2/13/2016	276673	0	0
2/14/2016	320591	0	0
2/15/2016	312300	0	0
2/16/2016	315060	0	0
2/17/2016	309134	0	17700
2/18/2016	317068	0	0
2/19/2016	325289	0	0
2/20/2016	320343	0	0
2/21/2016	209459	0	0
2/22/2016	196216	0	0
2/23/2016	0	247,500	0
2/24/2016	0	210,000	0
2/25/2016	0	240,000	0
2/26/2016	0	247,500	0
2/27/2016	0	247,500	0
2/28/2016	0	247,500	0
2/29/2016	0	172,500	0
TOTAL:	**5,607,718**	**1,612,500**	**26,200**

Comments:
Sample Point 013 si using an Emerson calibrated flow meter at the discharge location.
New meters were installed along with the upgrades to piping at the discharge. Those new meters will be calibratec
Sample Point 014 utilized hauling from 02/23/2016 through 02/29/2016 as a means for solids reduction. A total

Doug Mendoza

Bridgeton Landfill

From: Rob G Daly
Sent: Friday, March 04, 2016 1:33 PM
To: Jonathon Sprague
Cc: Bret A. Berthold; Catherine Politte; Becca Coyle; Mark Bright; Mike Townley; Jay Kniker; Doug Mendoza; John Lodderhose; Buffy Santel
Subject: Bridgeton PS Operational Issues- Status Update 4MAR2016 STATUS UPDATE

Jon

1. We are now moving landfill effluent product through the Bridgeton Pump Station_Force Main system to Bissel TP. Landfill hauling to BTP should cease today.

2. We are doing this via a temporarily installed, above ground bypass pumping system that is operating between PS No.1 and PS No. 2. System consists of approximately 2600 linear feet of above ground piping that runs parallel to Boenker Lane – and with 2 road crossings.

3. We will have someone monitoring the system of (well signed) above ground piping continuously throughout the operation of this bypass pumping system. This is to mitigate the risk and severity of any possible overflow event.

4. Line has been flushed repeatedly downstream of PS No.2 but....odor issues may occur over this weekend as we fill and charge the line with effluent. Any issues on odor from any party- please share with me so we can work to mitigate with landfill.

5. We continue to work on cleaning, repairing, and restoring to service the force main between PS No.1 and 2. It is possible this process will take up to an additional 2 plus weeks before we can get off this bypass pumping system.

6. Landfill fully in the loop on all issues. I also just had a conversation with Lance on details of this issue as well since he is getting media inquiries. We are going to be more 'visible' to general public for next few weeks (bypass pumping system) while we continue to resolve these issues.

Questions- let me know.

Rob Daly, P.E.
Division Manager- Pump Stations
Department of Operations
Metropolitan St Louis Sewer District
1025 Grand Glaize Parkway
Valley Park, MO 63088-1952
(636) 861-6706 (Office)

rdaly@stlmsd.com

From: Rob G Daly
Sent: Tuesday, February 23, 2016 8:17 PM
To: Jonathon Sprague
Cc: Bret A. Berthold; Catherine Politte; Becca Coyle; Mark Bright; Mike Townley; Jay Kniker; Doug Mendoza; John Lodderhose
Subject: Bridgeton PS Operational Issues- Status Update 23FEB2016 STATUS UPDATE

TO: **File**

FROM: Angie McDonough amm

DATE: February 26, 2016

RE: **BRIDGETON LANDFILL LLC**
WASTEWATER USER CHARGE BILLING
ACCOUNT NUMBER 0039145-8

Pursuant to the MSD Industrial Wastewater Discharge Permit for the above referenced facility, this facility will be billed for the following charges for the indicated billing period:

DISCHARGE PERIOD: **January 2016**

BILLING IS FOR: **On-Site Special Discharge**

SAMPLE POINT: **013 - Commingled landfill leachate and landfill gas collection system condensate.**

Billing Item	Quantity	Units	Rate	Charge
Volume	8,507	CcF	$ 3.21 /CcF	$27,307.47
COD Extra-Strength Surcharge	2,350	mg/L	$316.19 /ton	$14,686.46
Total	--	--	--	**$41,993.93**

If you have any questions, please call me at extension 8762.

bv

ec: Brian Gibson
Doug Mendoza
Bridgeton Republic Services

FILE: IU, Bridgeton Landfill LLC, 1003-8030-00

Christopher J. Bulmahn Bridgeton Landfill CB

1003803000

From: Doug Mendoza
Sent: Friday, February 26, 2016 7:31 AM
To: Brian G. Gibson
Cc: Angie McDonough; Christopher J. Bulmahn
Subject: Bridgeton Landfill January on-site (& hauled) billing info.

Bridgeton Landfill had no/zero hauled waste (SP014) discharge volume for December 2015.

On-site (SP013) discharge volume for January 2016 was **6,363,395 gallons**.

Applicable surcharge is taken from the last sample analyzed, 11/10/15: BOD = 211 mg/L, **COD = 2,350 mg/L**, TSS = 16 mg/L.

---Doug

Bridgeton Landfill Pretreatment Facility - Permit #1003803000 -1.2
Monthly Discharge Report

Date	FIT-420	Conversion Factor	Discharge Sample Point **013**	Hauled Sample Point **014**	Forcemain flush water
1/1/2016	206,000	0.92	223913	0	0
1/2/2016	211,832	0.92	230252	0	0
1/3/2016	215,440	0.92	234174	0	0
1/4/2016	212,008	0.92	230443	0	0
1/5/2016	191,664	0.92	208330	0	0
1/6/2016	197,952	0.92	215165	0	0
1/7/2016	217,960	0.92	236913	0	0
1/8/2016	219,616	0.92	238713	0	0
1/9/2016	222,272	0.92	241600	0	0
1/10/2016	126,656	0.92	137669	0	0
1/11/2016	145,272	0.92	157904	0	0
1/12/2016	193,712	0.92	210556	0	0
1/13/2016	189,216	0.92	205669	0	0
1/14/2016	181,230	0.92	196989	0	0
1/15/2016	175,110	0.92	190336	0	0
1/16/2016	165,492	0.92	179882	0	0
1/17/2016	158,272	0.92	172035	0	0
1/18/2016	151,008	0.92	236249	0	0
1/19/2016	147,928	0.92	160791	0	0
1/20/2016	174,872	0.92	190078	0	0
1/21/2016	141,848	0.92	154182	0	0
1/22/2016	189,848	0.92	206356	0	0
1/23/2016	190,184	0.92	206721	0	0
1/24/2016	197,238	0.92	214389	0	0
1/25/2016	213,050	0.92	231576	0	0
1/26/2016	207,340	0.92	225369	0	0
1/27/2016	209,880	0.92	228130	0	0
1/28/2016	215,690	0.92	234445	0	0
1/29/2016	121,618	0.92	132193	0	0
1/30/2016	195,600	0.92	212608	0	0
1/31/2016	202,184	0.92	219765	0	0
TOTAL:			**6,363,395**		

Doug Mendoza

Bridgeton Landfill

From: Doug Mendoza
Sent: Friday, February 26, 2016 7:06 AM
To: 'LaFata, Natalie'
Cc: Graves, Stephen; Fanning, Erin; Christopher J. Bulmahn; Brian G. Gibson
Subject: RE: 2016 Outfall Report - Permit #1003803000-1.2

Natalie,

This looks good. Thank you.

The comment at the bottom can be revised accordingly starting with February's report. Please also submit just a spreadsheet for a single month, rather than continuing to add tabs for each new month. You can, of course, keep them however you desire on your own end.

Doug

From: LaFata, Natalie [mailto:nlafata@cecinc.com]
Sent: Thursday, February 25, 2016 3:58 PM
To: Doug Mendoza
Cc: Graves, Stephen; Fanning, Erin; Christopher J. Bulmahn; Brian G. Gibson
Subject: RE: 2016 Outfall Report - Permit #1003803000-1.2

Doug,
I have revised the spreadsheet to include the potable water line usage when used as force main flush water. I have also included a comment section that includes any important information regarding the calibration factor and calibration schedule for the new meters since they were installed on Feb 1st. Please look this spreadsheet over and if it needs any additional information, please let me know.

Natalie L. La Fata / Plant Manager
Civil & Environmental Consultants, Inc.
4848 Park 370 Blvd., Suite F · Hazelwood, MO 63042
Toll Free: (866) 250-3679 ext. 3627 · Fax: (314) 656-4595
Mobile: (314) 341-3375 · http://www.cecinc.com
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From: Doug Mendoza [mailto:DMENDOZA@stlmsd.com]
Sent: Thursday, February 25, 2016 7:42 AM
To: LaFata, Natalie
Cc: Graves, Stephen; Fanning, Erin; Christopher J. Bulmahn; Brian G. Gibson
Subject: RE: 2016 Outfall Report - Permit #1003803000-1.2

Natalie,
Your report is missing a couple of critical items:
One is whether or not any raw water was discharged into the force main. This will need to be an ongoing part of your monthly volume reports.

Doug Mendoza

From: Doug Mendoza
Sent: Friday, February 26, 2016 6:58 AM
To: 'Graves, Stephen'
Cc: Erin Fanning (EFanning@republicservices.com); LaFata, Natalie; Kamp, Kevin
Subject: RE: Continued hauling from Bridgeton Landfill

Steve,

If the material being hauled were from after the ultrafilters, i.e. the same material as would be discharged through sample point 013, then Bridgeton Landfill could haul it at their pleasure (within normal station hours of M-F 7am-3pm). For extended hauling hours, arrangements would have to be made.

However, since you are not hauling fully pretreated leachate, you will need to make a formal request to extend the approval. Please give MSD any request for an extension prior to Friday, March 4, 2016. The actual extension of approval for discharge of the partially pretreated leachate is simple. The more critical concern is sufficient advance notice to arrange staffing for any extended hours at the hauled waste station.

Sincerely,
Doug Mendoza
Industrial Pretreatment Manager

From: Graves, Stephen [mailto:sgraves@cecinc.com]
Sent: Thursday, February 25, 2016 2:38 PM
To: Doug Mendoza
Cc: Erin Fanning (EFanning@republicservices.com); LaFata, Natalie; Kamp, Kevin
Subject: Continued hauling

Doug,

Are there any new or supplemental analyses or notifications which need to be completed prior to hauling permeate to the Bissel Plant due to the shut-down of the force main after the completion of the initial mixed liquor hauling next week?

Thanks,

Steve

Stephen E. Graves, P.E. / Senior Project Manager
Civil & Environmental Consultants, Inc.
4848 Park 370 Blvd., Suite F · Hazelwood, MO 63042
Toll-Free: (866) 250-3679 · Direct: (314) 447-3629 · Fax: (314) 656-4595
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12/15/2015	138,496	0.92	150,539	0
12/16/2015	214,416	0.92	233,060	0
12/17/2015	294,628	0.92	320,248	0
12/18/2015	207,816	0.92	225,887	0
12/19/2015	210,912	0.92	229,252	0
12/20/2015	167,168	0.92	181,704	0
12/21/2015	102,520	0.92	111,434	0
12/22/2015	97,688	0.92	106,183	0
12/23/2015	188,952	0.92	205,382	0
12/24/2015	198,556	0.92	215,821	0
12/25/2015	190,980	0.92	200,630	0
12/26/2015	184,580	0.92	207,587	0
12/27/2015	177,132	0.92	192,534	0
12/28/2015	151,688	0.92	164,878	0
12/29/2015	165,180	0.92	179,543	0
12/30/2015	173,040	0.92	188,087	0
12/31/2015	182,260	0.92	198,109	0

From: LaFata, Natalie [mailto:nlafata@cecinc.com]
Sent: Wednesday, February 24, 2016 2:25 PM
To: Doug Mendoza
Cc: Graves, Stephen; Fanning, Erin
Subject: 2016 Outfall Report - Permit #1003803000-1.2

Doug,
Per the email below, I have attached a spreadsheet with the monthly discharge amounts for each sample point referenced in Permit #1003803000-1.2 for the Bridgeton Landfill Pretreatment Facility. With MSD approval, this will be sent electronically, within the required timeframe as addressed in the permit section D.2 and D.3 on a monthly basis. Please let me know if this will be a sufficient form for reporting the discharges from the Pretreatment Facility.

Thank you!

Natalie L. La Fata / Plant Manager
Civil & Environmental Consultants, Inc.
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From: Doug Mendoza [mailto:DMENDOZA@stlmsd.com]
Sent: Tuesday, February 16, 2016 10:27 AM
To: Bouchard, Derek
Cc: Christopher J. Bulmahn; 'sgraves@cecinc.com' (sgraves@cecinc.com)
Subject: FW: Bridgeton Landfill LLC 2016 Outfall Report - January

Derek,

Doug Mendoza

Bridgeton Landfill

From: Graves, Stephen <sgraves@cecinc.com>
Sent: Thursday, February 25, 2016 2:38 PM
To: Doug Mendoza
Cc: Erin Fanning (EFanning@republicservices.com); LaFata, Natalie; Kamp, Kevin
Subject: Continued hauling

Doug,

Are there any new or supplemental analyses or notifications which need to be completed prior to hauling permeate to the Bissel Plant due to the shut-down of the force main after the completion of the initial mixed liquor hauling next week?

Thanks,

Steve

Stephen E. Graves, P.E. / Senior Project Manager
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Doug Mendoza

Bridgeton Landfill

From: Doug Mendoza
Sent: Thursday, February 25, 2016 7:42 AM
To: 'LaFata, Natalie'
Cc: Graves, Stephen; Fanning, Erin; Christopher J. Bulmahn; Brian G. Gibson
Subject: RE: 2016 Outfall Report - Permit #1003803000-1.2
Attachments: RE: Bridgeton Landfill 4th quarter 2015 self-monitoring report and December discharge volume

Natalie,
Your report is missing a couple of critical items:
One is whether or not any raw water was discharged into the force main. This will need to be an ongoing part of your monthly volume reports.
The other is the calibration factor and adjusted volume for sample point 013. See the attached email from Steve Graves for last month. I have also copied his report for on site discharge volume below.

The new metering system went in starting February 1, from my correspondence with Steve Graves. For future months, my understanding is that there is no calibration factor required. However, I do not recall how the meter is kept calibrated. Please remind me, and verify whether or not a calibration factor will be used. After I get the response, I should be able to let you know what will be sufficient for the monthly volume reports.

Doug Mendoza
MSD Industrial Pretreatment Manager

December MSD LPTP Information

Date	FIT-420 from TK-420 to TK-97K	Factor	REPORTED DISCHARGE	FORCE MAIN FLUSH WATER
12/1/2015	204,664	0.92	222,460	0
12/2/2015	209,536	0.92	227,756	0
12/3/2015	208,072	0.92	226,165	0
12/4/2015	205,872	0.92	226,165	0
12/5/2015	199,464	0.92	216,808	0
12/6/2015	187,952	0.92	204,296	0
12/7/2015	211,616	0.92	230,017	0
12/8/2015	204,808	0.92	230,017	0
12/9/2015	204,808	0.92	222,617	0
12/10/2015	198,568	0.92	215,834	0
12/11/2015	149,424	0.92	162,417	0
12/12/2015	105,408	0.92	114,574	0
12/13/2015	188,912	0.92	205,339	0
12/14/2015	185,376	0.92	201,495	0

Doug Mendoza

Bridgeton Landfill

From: LaFata, Natalie <nlafata@cecinc.com>
Sent: Thursday, February 25, 2016 3:58 PM
To: Doug Mendoza
Cc: Graves, Stephen; Fanning, Erin; Christopher J. Bulmahn; Brian G. Gibson
Subject: RE: 2016 Outfall Report - Permit #1003803000-1.2
Attachments: MSD Monthly Discharge.xlsx

Doug,
I have revised the spreadsheet to include the potable water line usage when used as force main flush water. I have also included a comment section that includes any important information regarding the calibration factor and calibration schedule for the new meters since they were installed on Feb 1st. Please look this spreadsheet over and if it needs any additional information, please let me know.

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From: Doug Mendoza [mailto:DMENDOZA@stlmsd.com]
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To: LaFata, Natalie
Cc: Graves, Stephen; Fanning, Erin; Christopher J. Bulmahn; Brian G. Gibson
Subject: RE: 2016 Outfall Report - Permit #1003803000-1.2

Natalie,
Your report is missing a couple of critical items:
One is whether or not any raw water was discharged into the force main. This will need to be an ongoing part of your monthly volume reports.
The other is the calibration factor and adjusted volume for sample point 013. See the attached email from Steve Graves for last month. I have also copied his report for on site discharge volume below.

The new metering system went in starting February 1, from my correspondence with Steve Graves. For future months, my understanding is that there is no calibration factor required. However, I do not recall how the meter is kept calibrated. Please remind me, and verify whether or not a calibration factor will be used. After I get the response, I should be able to let you know what will be sufficient for the monthly volume reports.

Doug Mendoza
MSD Industrial Pretreatment Manager

December MSD LPTP Information

Bridgeton Landfill Pretreatment Facility - Permit #1003803000 -1.2
Monthly Discharge Report

Date	FIT-420	Conversion Factor	Discharge Sample Point **013**	Hauled Sample Point **014**	Forcemain flush water
1/1/2016	206,000	0.92	223913	0	0
1/2/2016	211,832	0.92	230252	0	0
1/3/2016	215,440	0.92	234174	0	0
1/4/2016	212,008	0.92	230443	0	0
1/5/2016	191,664	0.92	208330	0	0
1/6/2016	197,952	0.92	215165	0	0
1/7/2016	217,960	0.92	236913	0	0
1/8/2016	219,616	0.92	238713	0	0
1/9/2016	222,272	0.92	241600	0	0
1/10/2016	126,656	0.92	137669	0	0
1/11/2016	145,272	0.92	157904	0	0
1/12/2016	193,712	0.92	210556	0	0
1/13/2016	189,216	0.92	205669	0	0
1/14/2016	181,230	0.92	196989	0	0
1/15/2016	175,110	0.92	190336	0	0
1/16/2016	165,492	0.92	179882	0	0
1/17/2016	158,272	0.92	172035	0	0
1/18/2016	151,008	0.92	236249	0	0
1/19/2016	147,928	0.92	160791	0	0
1/20/2016	174,872	0.92	190078	0	0
1/21/2016	141,848	0.92	154182	0	0
1/22/2016	189,848	0.92	206356	0	0
1/23/2016	190,184	0.92	206721	0	0
1/24/2016	197,238	0.92	214389	0	0
1/25/2016	213,050	0.92	231576	0	0
1/26/2016	207,340	0.92	225369	0	0
1/27/2016	209,880	0.92	228130	0	0
1/28/2016	215,690	0.92	234445	0	0
1/29/2016	121,618	0.92	132193	0	0
1/30/2016	195,600	0.92	212608	0	0
1/31/2016	202,184	0.92	219765	0	0

Comments:
Sample Point 013 was using a calibration factor of 0.92 during the month of January.
FIT-420 is the meter being used for that discharge calculation.
New meters were installed along with the upgrades to piping at the discharge.
Those new meters will be calibrated by Emerson (manufacturer) on a quarterly basis.
The meters will also be field checked by means of a tank drawdown test.

Doug Mendoza Bridgeton Landfill

From: LaFata, Natalie <nlafata@cecinc.com>
Sent: Wednesday, February 24, 2016 2:25 PM
To: Doug Mendoza
Cc: Graves, Stephen; Fanning, Erin
Subject: 2016 Outfall Report - Permit #1003803000-1.2
Attachments: MSD Monthly Discharge.xlsx

Doug,
Per the email below, I have attached a spreadsheet with the monthly discharge amounts for each sample point referenced in Permit #1003803000-1.2 for the Bridgeton Landfill Pretreatment Facility. With MSD approval, this will be sent electronically, within the required timeframe as addressed in the permit section D.2 and D.3 on a monthly basis. Please let me know if this will be a sufficient form for reporting the discharges from the Pretreatment Facility.

Thank you!

Natalie L. La Fata / Plant Manager
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From: Doug Mendoza [mailto:DMENDOZA@stlmsd.com]
Sent: Tuesday, February 16, 2016 10:27 AM
To: Bouchard, Derek
Cc: Christopher J. Bulmahn; 'sgraves@cecinc.com' (sgraves@cecinc.com)
Subject: FW: Bridgeton Landfill LLC 2016 Outfall Report - January

Derek,

I know you have been sending in reports like the attached, but MSD has not been using them as the required monthly discharge volume reports for Bridgeton Landfill. They do not meet the permit requirements. Instead, we have been able to use the data supplied by Barr Engineering. For December's report, after Barr Engineering stopped submitted them, there were several emails back and forth between MSD & Bridgeton Landfill explaining what was needed. See the attached email. For January, we need the same information. We understand that a new metering system was installed starting for February on-site discharges. So a calibration adjustment then may no longer be necessary. However, a separate statement/report of raw water additions still will be needed.

In addition, separate reports are required for the on-site discharge, and any hauled discharge. If no discharge occurred from one or the other, a report stating that is required.

Please note that the reports are due by the 15th of each month, so we need the data as soon as possible.

---Doug Mendoza

Bridgeton Landfill Pretreatment Facility - Permit #1003803000 -1.2
Monthly Discharge Report

Date	Discharge Sample Point **013**	Hauled Sample Point **014**
1/1/2016	223913	0
1/2/2016	230252	0
1/3/2016	234174	0
1/4/2016	230443	0
1/5/2016	208330	0
1/6/2016	215165	0
1/7/2016	236913	0
1/8/2016	238713	0
1/9/2016	241600	0
1/10/2016	137669	0
1/11/2016	157904	0
1/12/2016	210556	0
1/13/2016	205669	0
1/14/2016	196989	0
1/15/2016	190336	0
1/16/2016	179882	0
1/17/2016	172035	0
1/18/2016	236249	0
1/19/2016	160791	0
1/20/2016	190078	0
1/21/2016	154182	0
1/22/2016	206356	0
1/23/2016	206721	0
1/24/2016	214389	0
1/25/2016	231576	0
1/26/2016	225369	0
1/27/2016	228130	0
1/28/2016	234445	0
1/29/2016	132193	0
1/30/2016	212608	0
1/31/2016	219765	0

Doug Mendoza

Bridgeton Landfill

From: Rob G Daly
Sent: Tuesday, February 23, 2016 8:17 PM
To: Jonathon Sprague
Cc: Bret A. Berthold; Catherine Politte; Becca Coyle; Mark Bright; Mike Townley; Jay Kniker; Doug Mendoza; John Lodderhose
Subject: Bridgeton PS Operational Issues- Status Update 23FEB2016 STATUS UPDATE

Jon

This system is continuing to cause us major problems.

We appear to now have an obstruction in the force main between PS No.1 and PS No.2. We have tried multiple, multiple methods to eliminate every possible mechanical (pump) related issue and have gotten it down to an issue in the force main- probably related to the precipitate issue. We have likewise attempted multiple, multiple methods to clear the line of any obstruction and to flush it out (jetting). We have even attempted to tv the line but too many bends to get far on this HDD installed pipe.

Bottom line- landfill is going to be trucking for at least a few more days this week.

Next step. We are going to have break into the force main (excavation, etc.- planned force main repair in other words) and get a tv camera in there- and try to first find, then get this approximately 2600 LF section of 8 in dia HDPE force main cleaned out and then place it back in service.

We are also looking at executing a bypass pumping solution with above ground piping (temporary) that gives us time to execute this solution while still getting water moving through the system.

We will be incurring even MORE significant costs- as well as another major investment of staff time and effort. We have been hitting this continuously every work day since last Wednesday and we WILL get this done- but it is going to take even more time and more resources. We will need to discuss that soon and I am compiling a report that identifies all costs expensed on these assets since start up for discussion and review.

I am only going to issue one more –last- update to this group- and that will be the one that says 'success has (finally) been achieved.' We will keep the landfill in the loop and I am available to anyone in this group for questions at any time of course.

Please note revised (smaller) email distribution list for this update. I will hit larger group in last update.

Rob Daly, P.E.
Division Manager- Pump Stations
Department of Operations
Metropolitan St Louis Sewer District
1025 Grand Glaize Parkway
Valley Park, MO 63088-1952
(636) 861-6706 (Office)

rdaly@stlmsd.com

Doug Mendoza

Bridgeton Landfill

From: Rob G Daly
Sent: Monday, February 22, 2016 4:27 PM
To: Ken Gambaro; Doug Mendoza
Cc: Mark Bright; Jay Kniker; Josh Leathers; John Lodderhose; Becca Coyle; Michael Kelly; Mike Townley; Mike Waxman; Lance LeComb; Sean Hadley; Catherine Politte; Bret A. Berthold; Jay Hoskins; John Welch; Al Jackson; Art Middleton; Bob Meppiel; Dean Sentman; Kim Osterloh; Mark Barton; John Lodderhose; Jonathon Sprague
Subject: RE: Bridgeton PS Operational Issues- Westlakes PS to Mo River Timeline 18FEB2016 STATUS UPDATE

Ken/Doug

Despite continuous, major effort on this system for last 4 work days- we are still not able to get water moving through this Bridgton-Bissel line.

Bottom line- we will be shutting off Westlakes PS (and flow through Bonfils FM) tomorrow morning (Tuesday morning the 23rd of February) at 0700 and landfill will start trucking at that point while we continue working the problems at Bridgeton PS_FM. Landfill personnel have been so advised (verbally) on our end as well just now - and in accordance with Doug's email earlier today. We have kept them in the loop throughout the day as well.

We will get this one way or the other- but every new resolution of one issue seems to bring a new problem to solve right behind it.

Current issue(s): force main appears to be air bound and we simply cannot burp the line. Pumps are hitting shut off head.

We have more tricks in our bag- will be attempting all of them it looks like before we get this system back up and running.

We will keep the group updated and please be assured that this is getting 100% of our attention until it is resolved.

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Valley Park, MO 63088-1952
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rdaly@stlmsd.com

From: Doug Mendoza
Sent: Monday, February 22, 2016 7:32 AM
To: Ken Gambaro; Rob G Daly; Jonathon Sprague
Cc: Mark Bright; Jay Kniker; Josh Leathers; John Lodderhose; Becca Coyle; Michael Kelly; Mike Townley; Mike Waxman; Lance LeComb; Sean Hadley; Catherine Politte; Bret A. Berthold; Jay Hoskins; John Welch; Al Jackson; Art Middleton; Bob

Doug Mendoza

Bridgeton Landfill

From: LaFata, Natalie <nlafata@cecinc.com>
Sent: Monday, February 22, 2016 9:37 PM
To: Doug Mendoza
Cc: Graves, Stephen; Erin Fanning
Subject: Bridgeton Hauling Analysis
Attachments: [Untitled].pdf

Doug, attached is the initial analysis requested by MSD in order to begin hauling activated sludge from the Bridgeton pretreatment facility. This report is also being sent to the haul station with the first load. The official laboratory report will be sent upon receipt.

Please feel free to contact me with any questions.

Natalie L. La Fata / Plant Manager
Civil & Environmental Consultants, Inc.
Mobile: (314) 341-3375 · http://www.cecinc.com
Sent from my iPhone

Begin forwarded message:

> **From:** Bridgeton PDF Writer <BridgetonPDFWriter@cecinc.com>
> **Date:** February 23, 2016 at 9:21:05 AM CST
> **To:** Natalie <nlafata@cecinc.com>
> **Subject: Scanned Document**
>
> Scanned Document Attached

Bridgeton LPTP Hauling Analysis Report

02/22/2016

Material Hauled: Activated Sludge

TSS (mg/L)	38,000
COD (mg/L)	2,500
pH (SU)	8.13
Temp (°C)	23.4

Doug Mendoza

Bridgeton Landfill

From: Doug Mendoza
Sent: Monday, February 22, 2016 7:32 AM
To: Ken Gambaro; Rob G Daly; Jonathon Sprague
Cc: Mark Bright; Jay Kniker; Josh Leathers; John Lodderhose; Becca Coyle; Michael Kelly; Mike Townley; Mike Waxman; Lance LeComb; Sean Hadley; Catherine Politte; Bret A. Berthold; Jay Hoskins; John Welch; Al Jackson; Art Middleton; Bob Meppiel; Dean Sentman; Kim Osterloh; Mark Barton; John Lodderhose
Subject: RE: Bridgeton PS Operational Issues- Westlakes PS to Mo River Timeline 18FEB2016 STATUS UPDATE

Bridgeton Landfill has been formally notified of the possible need to haul all leachate.

Rob – I understand you and staff are meeting with Bridgeton Landfill personnel this afternoon. While I am certain you already have this covered, please also have your staff coordinate the cessation of Bridgeton Landfill discharge to the Westlake pump station/Missouri River plant.

---Doug

From: Ken Gambaro
Sent: Friday, February 19, 2016 5:15 PM
To: Rob G Daly; Jonathon Sprague
Cc: Mark Bright; Jay Kniker; Josh Leathers; John Lodderhose; Becca Coyle; Michael Kelly; Mike Townley; Mike Waxman; Lance LeComb; Sean Hadley; Catherine Politte; Bret A. Berthold; Jay Hoskins; John Welch; Doug Mendoza; Al Jackson; Art Middleton; Bob Meppiel; Dean Sentman; Kim Osterloh; Mark Barton
Subject: RE: Bridgeton PS Operational Issues- Westlakes PS to Mo River Timeline 18FEB2016 STATUS UPDATE

Must be off by end of day Monday. Landfill will need to haul after that.

Sent from my Sprint Samsung Galaxy S® 5

-------- Original message --------
From: Rob G Daly <rdaly@stlmsd.com>
Date: 02/19/2016 16:52 (GMT-06:00)
To: Jonathon Sprague <JSPRAGUE@stlmsd.com>
Cc: Mark Bright <MGBRIG@stlmsd.com>, Jay Kniker <jkniker@stlmsd.com>, Josh Leathers <jleathers@stlmsd.com>, John Lodderhose <JRLODD@stlmsd.com>, Becca Coyle <RJCOYLE@stlmsd.com>, Michael Kelly <mdkell@stlmsd.com>, Mike Townley <MDTOWN@stlmsd.com>, Mike Waxman <MWAXMAN@stlmsd.com>, Lance LeComb <LLECOMB@stlmsd.com>, Sean Hadley <shadley@stlmsd.com>, Catherine Politte <cpolitte@stlmsd.com>, "Bret A. Berthold" <bberthold@stlmsd.com>, Jay Hoskins <jshosk@stlmsd.com>, John Welch <JWELCH@stlmsd.com>, Ken Gambaro <kmgamb@stlmsd.com>, Doug Mendoza <DMENDOZA@stlmsd.com>, Al Jackson <AJACKSON@stlmsd.com>, Art Middleton <AMIDDLE@stlmsd.com>, Bob Meppiel <BMEPP@stlmsd.com>, Dean Sentman <DSENTMAN@stlmsd.com>, Kim Osterloh <KOSTERLOH@stlmsd.com>, Mark Barton <JBARTON@stlmsd.com>

Doug Mendoza

From: Doug Mendoza
Sent: Monday, February 22, 2016 7:30 AM
To: Power, Brian <BPower@republicservices.com> (BPower@republicservices.com) (BPower@republicservices.com); Bouchard, Derek (DBouchard@republicservices.com) (DBouchard@republicservices.com)
Cc: 'sgraves@cecinc.com' (sgraves@cecinc.com); LaFata, Natalie (nlafata@cecinc.com); Ken Gambaro; Rob G Daly; John Lodderhose; Christopher J. Bulmahn; Tom Boehm; John Lodderhose; Becca Coyle; Mike Townley
Subject: Bridgeton Landfill discharge to Missouri River plant must stop at end of day Monday, and either use force main to Bissell Point plant or haul to Bissell

Brian,

As we just discussed on the telephone, I am letting you know that if the force main to the MSD Bissell Point plant is not yet operational by the end of the day today (Monday 2/22/16), then Bridgeton Landfill will have to cease its discharge to the MSD Missouri River plant (via the MSD Westlake pump station) at that time. This is because the Missouri River plant must prepare for use of ultraviolet disinfection at the plant, and your discharge interferes with operation of that system. From our telephone discussion, I realize you are currently working closely with MSD Operations personnel and have a meeting with them planned for this afternoon. They can further apprise you at that time. My current understanding is that the MSD Operations staff expect to have force main issues resolved today. However, should the schedule slip, then your discharge to MSD's Missouri River plant must cease.

Bridgeton Landfill already has received approval to haul its partially treated leachate (which has gone through all treatment except the final filtration) to MSD's Bissell Point plant starting Tuesday 2/23/16. While this was for a reason unrelated to the force main, namely to bring down solids levels in your biological treatment tanks, the timing should mean no operational issues for Bridgeton Landfill.

Doug Mendoza
MSD Industrial Pretreatment Manager

Doug Mendoza

Bridgeton Landfill

From: Ken Gambaro
Sent: Friday, February 19, 2016 5:15 PM
To: Rob G Daly; Jonathon Sprague
Cc: Mark Bright; Jay Kniker; Josh Leathers; John Lodderhose; Becca Coyle; Michael Kelly; Mike Townley; Mike Waxman; Lance LeComb; Sean Hadley; Catherine Politte; Bret A. Berthold; Jay Hoskins; John Welch; Doug Mendoza; Al Jackson; Art Middleton; Bob Meppiel; Dean Sentman; Kim Osterloh; Mark Barton
Subject: RE: Bridgeton PS Operational Issues- Westlakes PS to Mo River Timeline 18FEB2016 STATUS UPDATE

Must be off by end of day Monday. Landfill will need to haul after that.

Sent from my Sprint Samsung Galaxy S® 5

-------- Original message --------
From: Rob G Daly <rdaly@stlmsd.com>
Date: 02/19/2016 16:52 (GMT-06:00)
To: Jonathon Sprague <JSPRAGUE@stlmsd.com>
Cc: Mark Bright <MGBRIG@stlmsd.com>, Jay Kniker <jkniker@stlmsd.com>, Josh Leathers <jleathers@stlmsd.com>, John Lodderhose <JRLODD@stlmsd.com>, Becca Coyle <RJCOYLE@stlmsd.com>, Michael Kelly <mdkell@stlmsd.com>, Mike Townley <MDTOWN@stlmsd.com>, Mike Waxman <MWAXMAN@stlmsd.com>, Lance LeComb <LLECOMB@stlmsd.com>, Sean Hadley <shadley@stlmsd.com>, Catherine Politte <cpolitte@stlmsd.com>, "Bret A. Berthold" <bberthold@stlmsd.com>, Jay Hoskins <jshosk@stlmsd.com>, John Welch <JWELCH@stlmsd.com>, Ken Gambaro <kmgamb@stlmsd.com>, Doug Mendoza <DMENDOZA@stlmsd.com>, Al Jackson <AJACKSON@stlmsd.com>, Art Middleton <AMIDDLE@stlmsd.com>, Bob Meppiel <BMEPP@stlmsd.com>, Dean Sentman <DSENTMAN@stlmsd.com>, Kim Osterloh <KOSTERLOH@stlmsd.com>, Mark Barton <JBARTON@stlmsd.com>
Subject: RE: Bridgeton PS Operational Issues- Westlakes PS to Mo River Timeline 18FEB2016 STATUS UPDATE

Jon

NOT shifting over today. Still on Westlakes/Mo River.

Having issues with force main. Will get back to it Monday and expect to resolve at that time.

Will continue to update group.

Questions-let me know.

Rob Daly, P.E.
Division Manager- Pump Stations

Doug Mendoza Bridgeton Landfill

From: Rob G Daly
Sent: Friday, February 19, 2016 4:53 PM
To: Jonathon Sprague
Cc: Mark Bright; Jay Kniker; Josh Leathers; John Lodderhose; Becca Coyle; Michael Kelly; Mike Townley; Mike Waxman; Lance LeComb; Sean Hadley; Catherine Politte; Bret A. Berthold; Jay Hoskins; John Welch; Ken Gambaro; Doug Mendoza; Al Jackson; Art Middleton; Bob Meppiel; Dean Sentman; Kim Osterloh; Mark Barton
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Department of Operations
Metropolitan St Louis Sewer District
1025 Grand Glaize Parkway
Valley Park, MO 63088-1952
(636) 861-6706 (Office)

rdaly@stlmsd.com

From: Rob G Daly
Sent: Thursday, February 18, 2016 3:38 PM
To: Jonathon Sprague
Cc: Mark Bright; Jay Kniker; Josh Leathers; John Lodderhose; Becca Coyle; Michael Kelly; Mike Townley; Mike Waxman; Lance LeComb; Sean Hadley; Catherine Politte; Bret A. Berthold; Jay Hoskins; John Welch; Ken Gambaro; Doug Mendoza; Al Jackson; Art Middleton; Bob Meppiel; Dean Sentman; Kim Osterloh; Mark Barton
Subject: Bridgeton PS Operational Issues- Westlakes PS to Mo River Timeline 18FEB2016 STATUS UPDATE

Jon

One more day (hopefully) required. Mechanical issues at PS No. 1 (moderate in nature- but they require resolution) plus some issues t PS No.2 (riser pipe r&r).

Shooting for shift over on Friday. Flow still going through Westlakes PS to Mo River TP.

We will keep group advised once shift over happens- via email.

Rob Daly, P.E.

Doug Mendoza Bridgeton Landfill

From: Rob G Daly
Sent: Thursday, February 18, 2016 3:38 PM
To: Jonathon Sprague
Cc: Mark Bright; Jay Kniker; Josh Leathers; John Lodderhose; Becca Coyle; Michael Kelly; Mike Townley; Mike Waxman; Lance LeComb; Sean Hadley; Catherine Politte; Bret A. Berthold; Jay Hoskins; John Welch; Ken Gambaro; Doug Mendoza; Al Jackson; Art Middleton; Bob Meppiel; Dean Sentman; Kim Osterloh; Mark Barton
Subject: Bridgeton PS Operational Issues- Westlakes PS to Mo River Timeline 18FEB2016 STATUS UPDATE

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Metropolitan St Louis Sewer District
1025 Grand Glaize Parkway
Valley Park, MO 63088-1952
(636) 861-6706 (Office)

rdaly@stlmsd.com

From: Rob G Daly
Sent: Wednesday, February 17, 2016 4:02 PM
To: Jonathon Sprague
Cc: Mark Bright; Jay Kniker; Josh Leathers; John Lodderhose; Becca Coyle; Michael Kelly; Mike Townley; Mike Waxman; Lance LeComb; Sean Hadley; Catherine Politte; Bret A. Berthold; Jay Hoskins; John Welch; Ken Gambaro; Doug Mendoza; Al Jackson; Art Middleton; Bob Meppiel; Dean Sentman; Kim Osterloh; Mark Barton
Subject: Bridgeton PS Operational Issues- Westlakes PS to Mo River Timeline 17FEB2016 STATUS UPDATE

Jon

(Bridgeton Landfill Plant) Flow has **NOT** yet been shifted over from Westlakes PS/Bonfils Force Main/Mo River TP back to Bridgeton-Bissel PS_FM System. We are experiencing some start up issues- both at Plant end and ours (gate structures and at PS No. 1). A

Flow still going to Mo River TP for tonight. We are confident we can resolve issues Thursday.

I will update group once flow is successfully shifted.

Any questions or issues - please let me know.

Doug Mendoza

From: Doug Mendoza
Sent: Thursday, February 18, 2016 8:07 AM
To: 'Graves, Stephen'
Cc: Erin Fanning (EFanning@republicservices.com); Power, Brian; Kamp, Kevin; LaFata, Natalie; Christopher J. Bulmahn; Margie Irvin; Scott Rehmer; Angie McDonough; Brian G. Gibson; Martin Blecha; Rebecca Vitelli; Steve Grace; Dave Schepers; Jason T. Edwards; Joe Pavlich; Keith Holderle; Dave Kupke; Jason Gill; Jennifer A Pipas; Michael S. Kynion; Tom Boehm
Subject: RE: Hauling of Bridgeton Landfill's Mixed Liquor to MSD

Steve,

As we just discussed on the telephone, the hauling hours requested will be from 4 am to 7 pm and will include Saturday and Sunday.

I will be arranging coverage of the extra hours through Monday, March 7. If hauling will end prior to March 7, MSD will need notice at least two days notice in order to cancel the scheduled overtime. MSD also will need similar notification to extend the overtime. However, if hauling is to be extended but only during normal M-F 7am-3pm hours, that can be done simply with an immediate notification. The approval for this will expire on March 23, 2016.

Please remember that besides the requirements of Bridgeton Landfill's permit special condition A.2, Bridgeton Landfill will have to sample for the full list of parameters at sample point 014 at least once during the first quarter 2016.

Doug Mendoza
MSD Industrial Pretreatment Manager

From: Graves, Stephen [mailto:sgraves@cecinc.com]
Sent: Wednesday, February 17, 2016 2:06 PM
To: Doug Mendoza
Cc: Erin Fanning (EFanning@republicservices.com); Power, Brian; Kamp, Kevin; LaFata, Natalie
Subject: Hauling of Mixed Liquor to MSD

Doug,

As we have discussed, the Bridgeton Landfill Pre-treatment Plant needs to haul mixed liquor from our plant to the Bissel Wastewater Treatment Facility. This need has arisen because one of our filter presses is down and our mixed liquor concentration has become too high and needs to be reduced in a quickly as possible.

We are intending to commence hauling on Tuesday, 2/23/16 and continue hauling until the mixed liquor solids concentration is in our normal range of operation. We would like to haul, with overtime, each day and continue daily through the weekend until complete which should be within 2 weeks.

We will collect and analyze a sample from sample point 014 for COD, BOD5, TSS, and pH and forward the results of COD, TSS, and pH to you prior to hauling with the result of BOD5 being reported to you when we receive it. We will also collect and analyze a sample from sample point 014 each day we haul and have it analyzed for the same parameters as well.

Please call me if you have any questions or if I have missed anything.

1n

Doug Mendoza

Bridgeton Landfill

From: Rob G Daly
Sent: Wednesday, February 17, 2016 4:02 PM
To: Jonathon Sprague
Cc: Mark Bright; Jay Kniker; Josh Leathers; John Lodderhose; Becca Coyle; Michael Kelly; Mike Townley; Mike Waxman; Lance LeComb; Sean Hadley; Catherine Politte; Bret A. Berthold; Jay Hoskins; John Welch; Ken Gambaro; Doug Mendoza; Al Jackson; Art Middleton; Bob Meppiel; Dean Sentman; Kim Osterloh; Mark Barton
Subject: Bridgeton PS Operational Issues- Westlakes PS to Mo River Timeline 17FEB2016 STATUS UPDATE

Jon

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I will update group once flow is successfully shifted.

Any questions or issues - please let me know.

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Division Manager- Pump Stations
Department of Operations
Metropolitan St Louis Sewer District
1025 Grand Glaize Parkway
Valley Park, MO 63088-1952
(636) 861-6706 (Office)

rdaly@stlmsd.com

From: Rob G Daly
Sent: Wednesday, February 10, 2016 2:08 PM
To: Jonathon Sprague
Cc: Mark Bright; Jay Kniker; Josh Leathers; John Lodderhose; Becca Coyle; Michael Kelly; Mike Townley; Mike Waxman; Lance LeComb; Sean Hadley; Catherine Politte; Bret A. Berthold; Jay Hoskins; John Welch; Ken Gambaro; Doug Mendoza; Al Jackson; Art Middleton; Bob Meppiel; Dean Sentman; Kim Osterloh; Mark Barton
Subject: Bridgeton PS Operational Issues- Westlakes PS to Mo River Timeline 10FEB2016 STATUS UPDATE

All

A quick update.

We met with Landfill personnel today and reviewed plans to shift flow from landfill back to Bridgeton-Bissel system of pump stations/force mains.

Doug Mendoza

From: Graves, Stephen <sgraves@cecinc.com>
Sent: Wednesday, February 17, 2016 2:06 PM
To: Doug Mendoza
Cc: Erin Fanning (EFanning@republicservices.com); Power, Brian; Kamp, Kevin; LaFata, Natalie
Subject: Hauling of Mixed Liquor to MSD

Doug,

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Please call me if you have any questions or if I have missed anything.

Thanks,

Steve

Stephen E. Graves, P.E. / Senior Project Manager
Civil & Environmental Consultants, Inc.
4848 Park 370 Blvd., Suite F · Hazelwood, MO 63042
Toll-Free: (866) 250-3679 · Direct: (314) 447-3629 · Fax: (314) 656-4595
Mobile: (314) 330-7512 · http://www.cecinc.com
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Doug Mendoza

From: Graves, Stephen <sgraves@cecinc.com>
Sent: Monday, February 15, 2016 1:52 PM
To: John Lodderhose
Cc: Doug Mendoza; Wes Simmons; Alverda Oppermann; Erin Fanning (EFanning@republicservices.com); Kamp, Kevin
Subject: Bridgeton Landfill WWTP Treated Wastewater Overflow of 2/10/16
Attachments: 2-10-16 Bridgeton Landfill Notification Letter.pdf

John,

Along with the following description of the events leading to the overflow and measures taken to prevent future overflows of this nature I have attached a copy of the notification sent to the MDNR concerning this event.

Please let me know if you have any further questions.

Respectfully,

Steve Graves

Bridgeton Landfill WWTP Treated Wastewater Overflow of 2/10/16

On Wednesday, February 10, 2016 at approximately 3:45 p.m., treated wastewater (permeate) from the Bridgeton Landfill Pre-treatment Plant was discovered coming out of the discharge manhole, MH-013, at the Bridgeton Landfill. Upon discovery, the discharge was immediately turned off and the overflow was stopped. It was estimated that approximately 2000 gallons of permeate had overflowed from the manhole onto the ground, flowed from the Bridgeton Landfill property across Old St. Charles Road and back onto Bridgeton Landfill property. It then collected in a small pool adjacent to a stormwater holding pond.

MSD operations staff were contacted by the wastewater treatment plant staff and the DNR was contacted by the Bridgeton Landfill staff.

The investigation and cleanup began immediately with vacuum trucks being utilized to vacuum the permeate from the small pool adjacent to the stormwater holding pond. The entire area which had been contaminated was then flushed with clean water, the water collected, and repeated until the water in the pool was clear and then the pool was vacuumed dry. All of the water collected was discharged back into the pretreatment plant for retreatment.

The investigation determined that a sizable piece of scale had sloughed off from the inside of the discharge pipe and blocked the flow of effluent through the sluice gate which directs the flow of permeate to the West Lake Pump Station and this in turn had backed up the permeate in MH-013 until it overflowed. It should be noted that the scale which remained in that underground piping system connecting the 97,000 gallon discharge tank to the MSD piping system, was cleaned the previous week as the last reach of piping to be cleaned since the treatment operation had commenced. The scale removed is from the early operations and accumulated prior to recent upgrades to the process to improve the calcium removal in the primary treatment and is not representative of the current effluent conditions.

The immediate actions were to remove the solids from the sluice gate and completely re-clean the piping with the high pressure cleaning system. The discharge was then restarted and visually inspected to ensure that there were no restrictions in the flow through the discharge system, this visual monitoring was continued on an hourly basis through the night.

On Thursday, the underground piping system was visually inspected with a video camera and found to be clean. As a precaution, the MSD pipes leading to the West Lake Pump Station as well as the pipe leading to the Pump Station 1 were cleaned with high pressure water and visually inspected with the video camera.

In order to prevent an overflow of this nature from occurring again, a float switch has been installed in MH-013 which will detect a high liquid level in the manhole and send a signal to the actuator on the discharge valve to close thus

shutting off the flow to the manhole. This signal will also send an alarm to the wastewater treatment plant control room as well as to the cell phones carried by the operators and plant staff members.

Stephen E. Graves, P.E. / Senior Project Manager
Civil & Environmental Consultants, Inc.
4848 Park 370 Blvd., Suite F · Hazelwood, MO 63042
Toll-Free: (866) 250-3679 · Direct: (314) 447-3629 · Fax: (314) 656-4595
Mobile: (314) 330-7512 · http://www.cecinc.com
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Bridgeton Landfill LLC

January 11, 2016

Mr. Paul Morris
Water Pollution Control Unit Chief
Missouri Department of Natural Resources
St. Louis Regional Office
7545 South Lindbergh, Suite 210
St. Louis, MO 63125

Dr. Mr. Morris:

Notification of Non-Permit Point Discharge
January 10, 2016 Event,
Bridgeton Landfill, LLC, Bridgeton, Missouri
Permit No. MO - 0112771

Pursuant to Section B.2 of the November 1, 2013 Standard Conditions for NPDES Permits contained in the Missouri State Operating Permit (Permit No. MO-0112771) Bridgeton Landfill submits this Notification of Non-Permit Point Discharge. This follows up on verbal notification provided to MDNR Water Protection Program on February 10, 2016, at 9:00 PM by Brian Power, Environmental Manager.

On February 10, 2016, a blockage in discharge piping resulted in an overflow of wastewater (treated permeate being discharged to MSD) from a wet well within the Bridgeton Landfill premises. The resultant surface liquids exited at the site boundary with Old St. Charles Rock Road. This was observed at approximately 3:45 PM, and Bridgeton Landfill immediately mobilized response services to fully clean the discharged liquids and restore flow within the pipe. All work was completed on February 10th.

To prevent the potential for future overflow events Bridgeton Landfill thoroughly jetted the associated piping to remove any residual scaling or build up, and equipped the wet well with a level float and auto-shutoff control mechanism. These improvements were coordinated with MSD.

Please feel free to contact me with any questions.

Sincerely,

Derek Bourchard

Derek Bourchard
Environmental Specalist.
Bridgeton Landfill, LLC

Doug Mendoza

From: Nagel, Chris <Christopher.Nagel@dnr.mo.gov>
Sent: Thursday, February 11, 2016 8:23 AM
To: Jay Hoskins; Doug Mendoza; Terry Briggs (TBriggs@bridgetonmo.com); Terry Briggs (mayor@bridgetonmo.com)
Cc: Schmidt, Aaron; John Lodderhose; Alverda Oppermann; Wes Simmons; Lehman, Larry; Fitch, Charlene; Ardrey, Brenda
Subject: RE: Bridgeton Sanitary Landfill- Sanitary Sewer Overflow report

Thanks Jay. I forwarded you and Doug some pictures our staff took last night. I greatly appreciate your staff's quick response last night and your planned efforts today.

Let me know if you need anything from us.

Chris Nagel
Director
Solid Waste Management Program
Missouri Department of Natural Resources
(573) 526-3900
(573) 526-3902
christopher.nagel@dnr.mo.gov

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---

From: Jay Hoskins [mailto:jshosk@stlmsd.com]
Sent: Thursday, February 11, 2016 8:16 AM
To: Doug Mendoza; Nagel, Chris; Terry Briggs (TBriggs@bridgetonmo.com); Terry Briggs (mayor@bridgetonmo.com)
Cc: Schmidt, Aaron; jrlodd@stlmsd.com; Alverda Oppermann; Wes Simmons
Subject: RE: Bridgeton Sanitary Landfill- Sanitary Sewer Overflow report

Chris & Doug,

MSD emergency response staff were at the spill last night to check on the spill and cleanup. We are treating this matter as an illicit discharge.

The spill extended across Boenker Road and into the stormwater basin southwest of the pretreatment equipment and pump stations. We believe the spill was contained to stormwater basin that is on Bridgeton Landfill property, but it was difficult to fully inspect last night. We will inspect again today. Please contact Alverda Oppermann at 314-436-8715 if you have more specific questions.

Thanks,

Jay

Jay Hoskins, P.E.
Metropolitan St. Louis Sewer District
Engineering Department – Environmental Compliance
10 E. Grand Ave.
St. Louis, MO 63147
Phone: 314-436-8757

Doug Mendoza

From: Nagel, Chris <Christopher.Nagel@dnr.mo.gov>
Sent: Thursday, February 11, 2016 8:21 AM
To: Doug Mendoza; Jay Hoskins; Terry Briggs (TBriggs@bridgetonmo.com); Terry Briggs (mayor@bridgetonmo.com)
Cc: Schmidt, Aaron; John Lodderhose
Subject: RE: Bridgeton Sanitary Landfill- Sanitary Sewer Overflow report
Attachments: bslf sanitary sewer overflow 0201016.docx; IMG_0260.jpg; IMG_0259.jpg

Good morning Doug,

Attached are a few photos of the area. I believe it stayed on BSLF property but can't say 100%. I appreciate your follow up.

thanks

Chris Nagel
Director
Solid Waste Management Program
Missouri Department of Natural Resources
(573) 526-3900
(573) 526-3902
christopher.nagel@dnr.mo.gov

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---

From: Doug Mendoza [mailto:DMENDOZA@stlmsd.com]
Sent: Thursday, February 11, 2016 7:23 AM
To: Nagel, Chris; Jay Hoskins; Terry Briggs (TBriggs@bridgetonmo.com); Terry Briggs (mayor@bridgetonmo.com)
Cc: Schmidt, Aaron; jrlodd@stlmsd.com
Subject: RE: Bridgeton Sanitary Landfill- Sanitary Sewer Overflow report

Thanks, Chris.

The manhole you describe is on Bridgeton Landfill's private line. The public sewer does not start until the lift stations. So this is not actually an MSD incident or reportable SSO for MSD's purposes, if I am understanding correctly. However, it still is an environmental issue, of course. Do you have any details on the extent of the area that was impacted by the overflow – e.g. was it contained within Bridgeton Landfill property, etc? We will contact them regardless for details & corrective actions.

---Doug

From: Nagel, Chris [mailto:Christopher.Nagel@dnr.mo.gov]
Sent: Wednesday, February 10, 2016 5:37 PM
To: Jay Hoskins; Doug Mendoza; Terry Briggs (TBriggs@bridgetonmo.com); Terry Briggs (mayor@bridgetonmo.com)
Cc: Schmidt, Aaron; Nagel, Chris
Subject: Bridgeton Sanitary Landfill- Sanitary Sewer Overflow report

Jay, Doug and Terry,

Weather conditions (snow/mist) and approaching darkness caused some problems with photographs of area. However, the pathway of liquid leaving the site can be seen in front of the roadway gate and entering the ditch. Bridgeton staff present said much of the liquid was water mixed with the permeate used to clean up the permeate.

0

2-10-16. Gate from former Don's Automotive Shop. Premeate pathway visible going under fence leaving property. Near southwest corner of Bridgeton Landfill.

Permeate channel crossing Old St. Charles Rock Road and entering stormwater ditch on west side of road.

PH

Doug Mendoza

From: Jay Hoskins
Sent: Thursday, February 11, 2016 8:16 AM
To: Doug Mendoza; 'Nagel, Chris'; Terry Briggs (TBriggs@bridgetonmo.com); Terry Briggs (mayor@bridgetonmo.com)
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Thanks,

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Jay Hoskins, P.E.
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Sent: Wednesday, February 10, 2016 5:37 PM
To: Jay Hoskins; Doug Mendoza; Terry Briggs (TBriggs@bridgetonmo.com); Terry Briggs (mayor@bridgetonmo.com)
Cc: Schmidt, Aaron; Nagel, Chris
Subject: Bridgeton Sanitary Landfill- Sanitary Sewer Overflow report

Jay, Doug and Terry,

Giving you a heads up on a sanitary sewer overflow at the Bridgeton Sanitary Landfill:

Brian Power (Environmental Manager at Bridgeton Sanitary Landfill) called and reported a sanitary sewer overflow (SSO) at the Bridgeton Landfill property. He described the SSO as about 1,000 gallons of permeate (leachate that has already gone through the pre-treatment plant and been treated for discharge to MSD). He went on to explain that they have a sampling manhole that is located between their 97,000 gallon tank and the lift station on the southwest corner of the landfill off of Boenker Road/Old St. Charles Rock Road. The manhole became plugged and caused the overflow (he believes it was some leftover scaling they missed during the previous line cleanout). They have cleanup crews on site now vacuuming up the permeate and plan to flush the area with clean water and vacuum that water up. All liquids will be run back through their leachate pre-treatment plant. He estimated that the cleanup would be complete in 1-2 hours.

Any questions, let me know.

Thanks

Chris Nagel
Director
Solid Waste Management Program
Missouri Department of Natural Resources
(573) 526-3900
(573) 526-3902
christopher.nagel@dnr.mo.gov

Doug Mendoza

From: Nagel, Chris <Christopher.Nagel@dnr.mo.gov>
Sent: Wednesday, February 10, 2016 5:37 PM
To: Jay Hoskins; Doug Mendoza; Terry Briggs (TBriggs@bridgetonmo.com); Terry Briggs (mayor@bridgetonmo.com)
Cc: Schmidt, Aaron; Nagel, Chris
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Any questions, let me know.

Thanks

Chris Nagel
Director
Solid Waste Management Program
Missouri Department of Natural Resources
(573) 526-3900
(573) 526-3902
christopher.nagel@dnr.mo.gov

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Doug Mendoza

Bridgeton Landfill

From: Rob G Daly
Sent: Wednesday, February 10, 2016 2:08 PM
To: Jonathon Sprague
Cc: Mark Bright; Jay Kniker; Josh Leathers; John Lodderhose; Becca Coyle; Michael Kelly; Mike Townley; Mike Waxman; Lance LeComb; Sean Hadley; Catherine Politte; Bret A. Berthold; Jay Hoskins; John Welch; Ken Gambaro; Doug Mendoza; Al Jackson; Art Middleton; Bob Meppiel; Dean Sentman; Kim Osterloh; Mark Barton
Subject: Bridgeton PS Operational Issues- Westlakes PS to Mo River Timeline 10FEB2016 STATUS UPDATE

All

A quick update.

We met with Landfill personnel today and reviewed plans to shift flow from landfill back to Bridgeton-Bissel system of pump stations/force mains.

Kudos to the County Pump personnel who have invested an enormous amount of time, effort, and (unbudgeted) resources to schedule and complete the repairs required to get this system back in service. Despite multiple other challenges (flooding, force main repairs, etc.)- they continuously kept this moving forward.

We will be shifting flow off of Westlakes PS/FM- and Mo River TP- back to Bridgeton-Bissel FM_PS system **Wednesday, February 17th.**

I will send an email to this group noting the cut over - when this occurs.

We are doing this to address issues at Mo River TP associated with upcoming disinfection season- not because we are complete with all items that resulted from 28OCT2015 overflow event. We still have pumps out for repair and are using 'spare' pumps to achieve this shift over. There WILL be additional, temporary, shorter term shutdowns to achieve final repairs on system before all is said and done.

We will be (re) flushing the system with potable water prior to pushing landfill effluent to system-for odor control purposes and in accordance with the SOP we established with landfill personnel -but the potential exists for odor issues for first few days as we complete this shift back to Bridgeton-Bissel system. Any odor complaints- please share information with us.

Any questions- please let me know.

Jon- we have a detailed plan of action with Landfill personnel designed to mitigate likelihood of recurrence of overflow event- a plan that will be ongoing for months, not weeks. I will brief you (and DEC) on that more in person or in a separate email- early next week however.

Rob Daly, P.E.
Division Manager- Pump Stations
Department of Operations
Metropolitan St Louis Sewer District
1025 Grand Glaize Parkway
Valley Park, MO 63088-1952

DM

Doug Mendoza

From: Graves, Stephen <sgraves@cecinc.com>
Sent: Tuesday, February 09, 2016 2:42 PM
To: Doug Mendoza
Cc: Kamp, Kevin; Erin Fanning (EFanning@republicservices.com)
Subject: Bridgeton Landfill Pretreatment Plant flow measurement

Doug,

This is a follow up on our telephone conversation last Tuesday about the new discharge flowmeter system for the Bridgeton Pretreatment Facility.

The two new flowmeters measuring the discharge flow from the 97k Tank at the Bridgeton Landfill Pretreatment Plant to the MSD force main have been installed, commissioned, and started up. We began submitting, in the daily reporting, the measured flow to MSD from the new flowmeters on Monday, February 1, 2016 as agreed.

Sincerely,

Steve Graves

Stephen E. Graves, P.E. / Senior Project Manager
Civil & Environmental Consultants, Inc.
4848 Park 370 Blvd., Suite F · Hazelwood, MO 63042
Toll-Free: (866) 250-3679 · Direct: (314) 447-3629 · Fax: (314) 656-4595
Mobile: (314) 330-7512 · http://www.cecinc.com
Senior Leadership · Integrated Services · Personal Business Relationships

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Doug Mendoza

From: Doug Mendoza
Sent: Wednesday, January 27, 2016 1:32 PM
To: Bouchard, Derek (DBouchard@republicservices.com) (DBouchard@republicservices.com); Power, Brian <BPower@republicservices.com> (BPower@republicservices.com) (BPower@republicservices.com)
Subject: Bridgeton Landfill discharge to Missouri River treatment plant & disinfection season timing

Gentlemen,

As I just informed Derek on the telephone, we are approaching the start of preparations at MSD's Missouri River treatment plant for disinfection season. In a nutshell, this means that the Missouri River treatment plant will not be able to accept the leachate discharge from Bridgeton Landfill after February 19, 2016.

Bridgeton Landfill's discharge currently is routed to the Missouri River treatment plant because the primary discharge line to MSD's Bissell Point treatment plant is down for maintenance/repair work. The latest work I have is that the line to Bissell Point treatment plant open during the week of February 15. However, if the schedule slips beyond February 19, then Bridgeton Landfill will not be able to discharge its leachate to the onsite sewer system. Should Bridgeton Landfill so desire, it has the option of hauling its leachate discharge directly to the Bissell Point treatment plant's hauled waste receiving station, as has been done in the past. The disposal rate by MSD would be $0.02/gallon, per your discharge permit's special condition D.1, plus all additional fees and charges incurred by the District (including wages, salaries, benefits, and operational costs) in receiving the discharge at times other than during normal business hours as defined in District Ordinance 13701.

I understand that MSD Operations personnel are set to meet with Bridgeton Landfill personnel on February 5. They should be able to provide updated information at that time.

Please contact me if you have questions.
Sincerely,
Doug Mendoza
MSD Industrial Pretreatment Manager

Doug Mendoza

From: Rob G Daly
Sent: Sunday, January 24, 2016 8:20 PM
To: Doug Mendoza
Cc: Mark Bright; Jay Kniker; Jonathon Sprague; Josh Leathers; John Lodderhose; Ken Gambaro; Becca Coyle; Michael Kelly; Mike Townley
Subject: Bridgeton PS Operational Issues- Westlakes PS to Mo River Timeline

Doug (and Ken)

I passed this info off to Mike Kelly (who was sitting in Plant Manager meeting on Ken's behalf Friday) to pass on to Ken but wanted to follow up with an email for the Doug side. Also adding Becca and Mike Townley.

We are looking at having the system back off Westlakes and back onto Bridgeton by no later than the week of the 15th. It may not be Monday the 15th- it may potentially be a few days into that week- just to be clear. This is the best we can commit to right now and we may be able to beat that time but we are dependent on others at this point. We will keep providing updates to this group as we get closer. Next one to follow Monday the 8th of February- sooner if conditions change.

My understanding of the disinfection timeline would seem to indicate that we would not be telling the landfill to truck if we are able to get system back on Bridgeton pump stations and force main by end of that week but will defer that discussion till we get closer as it may end up being moot.

We will be meeting with landfill personnel Friday the 5th to review our status and ought to have better info on both sides at that time. We will keep the group apprised of changes or required information. Questions- let me know.

Thank you.

Rob Daly, P.E.
Division Manager- Pump Stations
Department of Operations
Metropolitan St Louis Sewer District
1025 Grand Glaize Parkway
Valley Park, MO 63088-1952
(636) 861-6706 (Office)

rdaly@stlmsd.com

From: Doug Mendoza
Sent: Tuesday, January 19, 2016 10:25 AM
To: Rob G Daly
Cc: Mark Bright; Jay Kniker; Jonathon Sprague; Josh Leathers; John Lodderhose; Ken Gambaro
Subject: RE: Bridgeton PS Operational Issues- Westlakes PS to Mo River Timeline

Thanks, Rob. That gives me details that I was not fully clear on (mainly because of my inability to completely remember it) in case the landfill wants to push the issue.

Doug

TO: **File**

FROM: Angie McDonough amm

DATE: January 22, 2016

RE: **BRIDGETON LANDFILL LLC**
WASTEWATER USER CHARGE BILLING
ACCOUNT NUMBER 0039145-8

Pursuant to the MSD Industrial Wastewater Discharge Permit for the above referenced facility, this facility will be billed for the following charges for the indicated billing period:

DISCHARGE PERIOD: **December 2015**

BILLING IS FOR: **On- Site Special Discharge**

SAMPLE POINT: **013 - Commingled landfill leachate and landfill gas collection system condensate.**

Billing Item	Quantity	Units	Rate	Charge
Volume	8,311	CcF	$ 3.21 /CcF	$26,678.31
COD Extra-Strength Surcharge	2,350	mg/L	$316.19 /ton	$14,348.09
Total	--	--	--	**$41,026.40**

If you have any questions, please call me at extension 8762.

bv

ec: Brian Gibson
Doug Mendoza
Bridgeton Republic Services

FILE: IU, Bridgeton Landfill LLC, 1003-8030-00

Doug Mendoza Bridgeton Landfill CB

1003803000

From: Graves, Stephen <sgraves@cecinc.com>
Sent: Thursday, January 21, 2016 11:48 AM
To: Doug Mendoza
Cc: Fanning, Erin; Bouchard, Derek; Kamp, Kevin
Subject: RE: Bridgeton Landfill 4th quarter 2015 self-monitoring report and December discharge volume
Attachments: MSD LPTP December2015.xlsx

Doug,

Attached please find a spreadsheet with the information requested concerning the calibration factor and any separately discharged raw water for December. Although we expected to complete the new discharge flow measuring system in December as discussed with you, installation was postponed due to an equipment delay and weather conditions, and was just completed yesterday. Commissioning of the system will take place next week, and we expect to provide you with details of the new flow measuring system's date of implementation, its calibration methods, and any additional information by the end of next week.

Respectfully,

Steve

Stephen E. Graves, P.E. / Senior Project Manager
Civil & Environmental Consultants, Inc.
4848 Park 370 Blvd., Suite F · Hazelwood, MO 63042
Toll-Free: (866) 250-3679 · Fax: (314) 656-4595
Mobile: (314) 330-7512 · http://www.cecinc.com
Senior Leadership · Integrated Services · Personal Business Relationships

---

From: Bouchard, Derek [mailto:DBouchard@republicservices.com]
Sent: Tuesday, January 19, 2016 1:19 PM
To: LaFata, Natalie; Graves, Stephen
Cc: Fanning, Erin
Subject: FW: Bridgeton Landfill 4th quarter 2015 self-monitoring report and December discharge volume

Below is an email from Doug Mendoza requesting additional information pertaining to the December discharge volume. Please review and provide the additional data/information he is requesting at your nearest convenience.

Thank you,

REPUBLIC SERVICES

"We'll handle it from here."

Derek Bouchard Environmental Specialist
Bridgeton Landfill, LLC
13570 St. Charles Rock Road
e dbouchard@republicservices.com
o 3146562114 c 3143023634
w republicservices.com

From: Doug Mendoza [mailto:DMENDOZA@stlmsd.com]
Sent: Tuesday, January 19, 2016 1:12 PM
To: Bouchard, Derek
Cc: Christopher J. Bulmahn
Subject: Bridgeton Landfill 4th quarter 2015 self-monitoring report and December discharge volume

Mr. Bouchard,

MSD has received the Bridgeton Landfill 4th quarter 2015 self-monitoring report. As part of the report, discharge volumes were submitted for the month of December 2015. The data consisted of a reported discharge volume for each day of the month. However, prior discharge volume reports included a calibration factor as well as reports of any separately discharged raw water. Additionally, changes were implemented in Bridgeton Landfill's flow measuring system during December. In order to accept the December discharge volume report, MSD needs for you to submit data on the calibration factor and any separately discharged raw water, as was done for previous reports. MSD also needs details of the new flow measuring system's date of implementation, its calibration methods and any necessary calibration factors (or lack of need for them). For future reports, we can then determine whether or not a calibration factor needs to be reported. Raw water discharge volume and dates likely will continue to be required, since this is a necessary discharge when leachate discharges are stopped or interrupted to the force main.

Sincerely,
Doug Mendoza
MSD Industrial Pretreatment Manager

December MSD LPTP Information

Date	FIT-420 from TK-420 to TK-97K	Factor	REPORTED DISCHARGE	FORCE MAIN FLUSH WATER
12/1/2015	204,664	0.92	222,460	0
12/2/2015	209,536	0.92	227,756	0
12/3/2015	208,072	0.92	226,165	0
12/4/2015	205,872	0.92	226,165	0
12/5/2015	199,464	0.92	216,808	0
12/6/2015	187,952	0.92	204,296	0
12/7/2015	211,616	0.92	230,017	0
12/8/2015	204,808	0.92	230,017	0
12/9/2015	204,808	0.92	222,617	0
12/10/2015	198,568	0.92	215,834	0
12/11/2015	149,424	0.92	162,417	0
12/12/2015	105,408	0.92	114,574	0
12/13/2015	188,912	0.92	205,339	0
12/14/2015	185,376	0.92	201,495	0
12/15/2015	138,496	0.92	150,539	0
12/16/2015	214,416	0.92	233,060	0
12/17/2015	294,628	0.92	320,248	0
12/18/2015	207,816	0.92	225,887	0
12/19/2015	210,912	0.92	229,252	0
12/20/2015	167,168	0.92	181,704	0
12/21/2015	102,520	0.92	111,434	0
12/22/2015	97,688	0.92	106,183	0
12/23/2015	188,952	0.92	205,382	0
12/24/2015	198,556	0.92	215,821	0
12/25/2015	190,980	0.92	200,630	0
12/26/2015	184,580	0.92	207,587	0
12/27/2015	177,132	0.92	192,534	0
12/28/2015	151,688	0.92	164,878	0
12/29/2015	165,180	0.92	179,543	0
12/30/2015	173,040	0.92	188,087	0
12/31/2015	182,260	0.92	198,109	0
	5,710,492		6,216,838	

Doug Mendoza

Bridgeton Landfill

From:	Rob G Daly
Sent:	Tuesday, January 19, 2016 10:22 AM
To:	Doug Mendoza
Cc:	Mark Bright; Jay Kniker; Jonathon Sprague; Josh Leathers; John Lodderhose; Ken Gambaro
Subject:	Bridgeton PS Operational Issues- Westlakes PS to Mo River Timeline

Doug

We have been wrapped up with flooding issues- and these have unfortunately taken priority over the issues at Bridgeton. However, we are executing a solid plan to get back on- and to- Bridgeton issues and have been thoroughly aware that these issues did not go away due to flooding concerns.

More to follow soon – and to be clear- we are fairly comfortable that we will beat that Feb 15 timeline of being back on Bridgeton force main and pump stations before then.

Situation will definitely not be fully resolved (this process will take months at best to completely address) but we should be able to at least switch flows back of Westlakes PS/FM by then. The reason our response is still pending is due to others, i.e. pump repair shops owe us answers and we do not have them yet.

One issue needs to be clarified though- regarding "If they have to spend large amounts of money to haul to Bissell because of MSD delays (intended or not), that could be an issue."

These issues we are going through are as a direct result of Bridgeton Landfill imposed root causes (due to their processes) and they caused all of these 'delays' and impact to our system- so there is no MSD delay possible. There is only MSD moving as fast as is literally possible- and with great expenditure of time, effort, and resources (in $200K plus range at this time- without accounting for our staff time and labor costs even) to resolve these issues. We are working with Landfill very collaboratively, and cooperatively, and feel comfortable at this time that they are also working diligently with us to resolve these systemic issues. However- they have no leg to stand on if there are any trucking costs or delays beyond Feb 15. We clearly have no desire, or intent, to put them to that cost and expense for any reason but that of absolute necessity and please hear that we are working hard to make this a 'non-issue'.

I pledge more information on this by end of week and we will be in pretty constant touch with Landfill again by early next week.

Thanks.

Rob Daly, P.E.
Division Manager- Pump Stations
Department of Operations
Metropolitan St Louis Sewer District
1025 Grand Glaize Parkway
Valley Park, MO 63088-1952
(636) 861-6706 (Office)

rdaly@stlmsd.com

From: Doug Mendoza
Sent: Tuesday, January 19, 2016 9:23 AM
To: Rob G Daly; Ken Gambaro
Cc: Mark Bright; Jay Kniker; Jonathon Sprague; Josh Leathers; John Lodderhose
Subject: RE: Bridgeton PS Operational Issues- Westlakes PS to Mo River Timeline

I really need to be able to tell the landfill how to plan, so please let me know as soon as you have had your meeting later this week.

If they have to spend large amounts of money to haul to Bissell because of MSD delays (intended or not), that could be an issue.

---Doug

From: Rob G Daly
Sent: Monday, January 18, 2016 4:53 PM
To: Ken Gambaro
Cc: Mark Bright; Jay Kniker; Jonathon Sprague; Josh Leathers; Doug Mendoza
Subject: Bridgeton PS Operational Issues- Westlakes PS to Mo River Timeline

Ken

We will talk again on this issue- which has been sidetracked by flooding issues- towards end of week- probably at plant manager meeting. End of month still holds as an 'at best' estimate.

Rob Daly, P.E.
Division Manager- Pump Stations
Department of Operations
Metropolitan St Louis Sewer District
1025 Grand Glaize Parkway
Valley Park, MO 63088-1952
(636) 861-6706 (Office)

rdaly@stlmsd.com

From: Ken Gambaro
Sent: Friday, January 15, 2016 7:09 AM
To: Rob G Daly; Doug Mendoza
Cc: Mark Bright; Jay Kniker; Jonathon Sprague; Josh Leathers
Subject: RE: Bridgeton PS Operational Issues- Westlakes PS to Mo River Timeline

The landfill will need to stop pumping to the Missouri River treatment plant by February 15, 2015 so that we can begin preparations for disinfection season.

Will the pump station be operational by then? The landfill should be advised of this so they can begin making alternate plans for wastewater disposal if necessary.

Kenneth M. Gambaro, P.E.
Operations Division Manager
Metropolitan St. Louis Sewer District
Coldwater Creek WWTP
314-646-2431
Missouri River WWTP
314-646-2421

Engineering for a Better World
FEEZOR
ENGINEERING, INC.

CB
3-15

Mr. Chris Bulmahn
Associate Engineer
Metropolitan St. Louis Sewer District
Division of Environmental Compliance
10 East Grand Avenue
St. Louis, MO 63147-2913

January 12, 2016

Dear Mr. Bulmahn:

Fourth Quarter 2015 Self-Monitoring Report
Bridgeton Landfill, LLC - Discharge Permit No. 1003803000 - 1

On behalf of Bridgeton Landfill, LLC, Feezor Engineering, Inc. is submitting the Self-Monitoring Report for the Fourth Quarter 2015 leachate sampling event at the Bridgeton Landfill.

On November 2 - 3, 2015, Herst & Associates, Inc. collected composite samples of treated leachate from Bridgeton Landfill sampling points 013 and 014 for analysis of radioactive constituents, as required by Permit No. 1003803000 - 1. In accordance with a March 21, 2014 phone conversation between Mr. Ed Galbraith of Barr Engineering Company (Barr) and the Missouri Department of Natural Resources (MDNR), additional composite samples were collected from sampling points 013 and 014 for analysis of Total Dissolved Solids (TDS) and Total Suspended Solids (TSS) concurrently with the collection of the composite samples for radioactive constituent analysis. Composite samples were analyzed by the Eberline Services facility located in Oak Ridge, Tennessee (Eberline).

The analytical results of the sampling at points 013 and 014 indicate that the concentrations of analyzed constituents are within Permit-established limits.

The Eberline laboratory analytical report associated with the Fourth Quarter 2015 radiologic sampling has been provided previously to MSD via the Barr FTP site. The data reports and spreadsheets can be accessed through an Internet browser at the following URL:

ftp://ftp.barr.com/bridgetonlandfill/2015%20Reports/2015_1209/

During the fourth quarter of 2015, Civil and Environmental Consultants, Inc. (CEC) collected samples from points 013 and 014 for analysis of other permit-required constituents. The data reports and spreadsheets associated with the samples collected by CEC can be accessed through an Internet browser at the following URLs:

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ftp://ftp.barr.com/bridgetonlandfill/2015%20Reports/2015_1014/

through

ftp://ftp.barr.com/bridgetonlandfill/2015%20Reports/2015_1209/

The Barr FTP site can be accessed as follows:

Copy this link and paste it into an Internet browser:

ftp://ftp.barr.com/bridgetonlandfill/2015%20Reports/

User: blfdata Password: tran$fer!

According to Barr, the links to these sites will be maintained until February 29, 2016, after which time the site will be deactivated.

Attachment 1 presents the MSD Industrial Self-Monitoring Report form and Radioactive Materials Discharge Report form for Fourth Quarter 2015 monitoring event results of points 013 and 014. **Attachments 2** and **3** present the calculations used to determine the amount of radionuclide activity discharged and hauled, respectively, during the fourth quarter of 2015. **Attachment 4** presents monthly leachate volume records for the Bridgeton Landfill for October, November, and December 2015.

The gross gamma results presented in the laboratory analytical report have been qualified by Eberline. As reported in the laboratory analytical report case narrative:

> *Gross Gamma results are misleading because they are reported from Potassium-40 only to demonstrate the method sensitivity. In this case, there are no real positive gamma emitting radionuclides in these samples and most results are reported from the Canberra "non-identified" radionuclides report. The method blank demonstrated acceptable results for all radionuclides as reported.*

The gamma results have been noted as qualified on the forms presented in **Attachment 1**.

Please contact Derek Bouchard, Environmental Specialist at 314-302-3634 if you have any questions or comments.

Sincerely,

Jonathan E. Wilkinson, P.E.
Project Manager

Cc: Derek Bouchard – Bridgeton Landfill
John Haasis – St. Louis County Department of Health

Attachments: Attachment 1 – MSD Industrial User Reporting Forms
Attachment 2 – Calculation of Discharged Activity
Attachment 3 – Calculation of Hauled Activity
Attachment 4 – Monthly Leachate Volume Records

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Attachment 1

MSD Industrial User Reporting Forms

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METROPOLITAN ST. LOUIS SEWER DISTRICT
INDUSTRIAL USER SELF MONITORING REPORT

PART I: IDENTIFYING INFORMATION

Company Name: BRIDGETON LANDFILL LLC

Permit No: **1003803000 – 1** Effective Date: **September 1, 2014** Expiration Date: **August 31, 2019**
Premise Address: 13570 St. Charles Rock Road

Monitoring Period: ☐ (JAN-MAR) ☐ (APR-JUNE) ☐ (JULY-SEPT) ☑ (OCT-DEC)

Samples Collected By: **Jonathan Wilkinson - Herst & Associates, Inc.**

Analyses Performed By: **Eberline Services**

PART II: ANALYTICAL RESULTS OF SELF MONITORING

MSD SAMPLE POINT REFERENCE NUMBERS ⇨		014		013				
DATES ON WHICH SAMPLES WERE COLLECTED ⇨		11/2 - 11/3/2015		11/2 - 11/3/2015				
TIMES AT WHICH SAMPLES WERE COLLECTED ⇨		11:20, 15:05, 09:15, 11:15		11:30, 15:15, 09:25, 11:25				
PARAMETER	LIMIT	RECORD SAMPLE TYPES (G, C, M OR E) AND RESULTS BELOW (G=grab, C=composite, M=measured flow, E=estimated flow)						UNITS
Flow			N/A		241,326			GPD
pH Acidic (≤7)	5.5	G		G				SU
pH Basic (≥7)	11.5	G	7.90	G	7.87			SU
Temperature	60	G	20.2	G	28.8			° C
Total Dissolved Solids	***	C	11,100	C	10,920			mg/L
Total Suspended Solids	***	C	16,990	C	570			mg/L
Gross Alpha	***	C	< MDA	C	< MDA			pCi/L
Gross Beta	***	C	212 ± 62.5	C	166 ± 74.0			pCi/L
Gross Gamma	***	C	391 ± 159*	C	319 ± 158*			pCi/L
Radium – 226	600	C	< MDA	C	< MDA			pCi/L
Radium – 228	600	C	< MDA	C	< MDA			pCi/L
Uranium (Total)		C	< MDA	C	< MDA			µg/L
Uranium (Natural)	3000	C	0.51 ± 0.38	C	0.52 ± 0.48			pCi/L

Entered on the 12-9-15 report.

You must complete and sign the certification statements on the second page.

1

*The gross gamma activity concentration presented above has been qualified by Eberline. As stated in the laboratory analytical report case narrative: "Gross Gamma results are misleading because they are reported from Potassium-40 only to demonstrate the method sensitivity. In this case, there are no real positive gamma emitting radionuclides in these samples and most results are reported from the Canberra "non-identified" radionuclides report. The method blank demonstrated acceptable results for all radionuclides as reported."

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MSD 033818

PART III: SPECIAL CERTIFICATION STATEMENTS

Based on the special conditions contained in your discharge permit you may be required to certify the following. Please review your permit and **PLACE YOUR INITIALS ON THE LINES NEXT TO THE CERTIFICATIONS.**

O	NO DISCHARGE OF HAZARDOUS HAULED WASTE
	For permit special conditions that prohibit discharge of hazardous waste to the District, you are required to make the following certification: DPB I certify, since the last discharge monitoring report, there has been no discharge of hazardous waste to the District.

PART IV: GENERAL CERTIFICATION STATEMENTS

B	DISCHARGE MONITORING REPORT CERTIFICATION
	All permittees must sign and complete the information below: I certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. Print or type name of signing official: **Derek Bouchard** Title: **Environmental Specialist** Telephone: **314-302-3634** Signature: Derek Bouchard Date: 1/12/16

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METROPOLITAN ST. LOUIS SEWER DISTRICT
INDUSTRIAL USER RADIOACTIVE MATERIALS DISCHARGE REPORT

Part I: Identifying Information

Company Name: Bridgeton Landfill, LLC

Permit No.: 1003803000 - 1

Premise Address: 13570 St. Charles Rock Road, Bridgeton, MO 63044

Monitoring Period: ☐ (Jan-Mar) ☐ (Apr-Jun) ☐ (July-Sept) ☑ (Oct-Dec)

Part II: Record of Disposal of Radioactive Materials to the Sewer System

Radionuclide	Activity Discharged (Picocuries)
Gross Alpha	N/A
Gross Beta	1.33×10^{10}
Gross Gamma	2.55×10^{10}*
Radium - 226	N/A
Radium - 228	N/A
Total Uranium (Uranium – 234 plus Uranium – 235 plus Uranium – 238)	4.07×10^{7}
Total Activity Discharged:	3.88×10^{10}

Notes:
N/A: Not applicable. Constituent below Minimum Detectable Activity.

Part III: Certification Statements

Place your initials in the box under item A.
Everyone must complete the information under items A & B and sign this report.

A. **Certification of Compliance with Federal regulations**

DW I certify that to the best of my knowledge & belief, all requirements of 10 CFR Part 20, Appendix B, Table 3 governing disposal by release into sanitary sewage for material regulated by the Nuclear Regulatory Commission have been met for the period covered by this report.

B. **Radioactive Materials Discharge Report Certification**

I certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information submitted is , to the best of my knowledge and belief, true c, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Print or type name of signing official: Derek Bouchard

Title: Environmental Specialist Telephone: 314-302-3634

Signature: Derek Bouchard Date: 1/12/16

*The gross gamma activity concentration presented above has been qualified by Eberline. As stated in the laboratory analytical report case narrative: "Gross Gamma results are misleading because they are reported from Potassium-40 only to demonstrate the method sensitivity. In this case, there are no real positive gamma emitting radionuclides in these samples and most results are reported from the Canberra "non-Identified" radionuclides report. The method blank demonstrated acceptable results for all radionuclides as reported."

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Attachment 2

Calculation of Discharged Activity

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FEEZOR ENGINEERING, INC.
Engineering for a Better World

Calculation of Discharged Activity
Bridgeton Landfill, LLC - Discharge Permit No. 1003803000 - 1

In accordance with Special Condition II.C.3 of the Bridgeton Landfill, LLC Hauled and Industrial Wastewater Discharge Permit (Permit No. 1003803000 - 1), each of the facility's quarterly self-monitoring reports shall specify the activity by radionuclide that is discharged to the Metropolitan St. Louis Sewer District (MSD) system during the reporting period. The methodology that was utilized to calculate the activity discharged from the Bridgeton Landfill during the third quarter of 2015 is described below. A separate calculation is utilized to determine the activity by radionuclide that is hauled to MSD facilities during the reporting period (see **Attachment 3**).

The discharged activity for each radionuclide is determined by multiplying the activity concentration for the reporting period by the total volume that was discharged during the reporting period:

Discharged Activity = Activity Concentration × Discharged Volume

As presented in the laboratory analytical reports accessible on the Barr Engineering Company (Barr) FTP site, Eberline Services (Eberline) reported the following radionuclide activity concentrations from the composite samples collected on November 2 - 3, 2015 from leachate sampling point 013:

Constituent	Result	Units
Gross Alpha	< MDA	pCi/L
Gross Beta	166 ± 74.0	pCi/L
Gross Gamma	319 ± 158	pCi/L
Radium - 226	< MDA	pCi/L
Radium - 228	< MDA	pCi/L
Uranium - 234	0.52 ± 0.48	pCi/L
Uranium - 235	< MDA	pCi/L
Uranium - 238	< MDA	pCi/L

Notes:
1 pCi = 1×10^{-12} Ci
MDA = Minimum Detectable Activity

Note that the gross gamma activity concentration presented above has been qualified by Eberline. As stated in the laboratory analytical report case narrative:

> *Gross Gamma results are misleading because they are reported from Potassium-40 only to demonstrate the method sensitivity. In this case, there are no real positive gamma emitting radionuclides in these samples and most results are reported from the Canberra "non-identified" radionuclides report. The method blank demonstrated acceptable results for all radionuclides as reported.*

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As presented in **Attachment 4**, the following monthly volumes were discharged through leachate sampling point 013 during the fourth quarter of 2015:

Month	Volume Discharged (gal)
October 2015	6,460,690
November 2015	6,367,175
December 2015	6,216,838

The total volume discharged during the fourth quarter of 2015 is therefore:

$$6{,}460{,}690 \text{ gal} + 6{,}367{,}175 \text{ gal} + 6{,}216{,}838 \text{ gal} = 19{,}044{,}703 \text{ gal}$$

Given that activity concentration results are presented in pCi/L, the total volume discharged is converted from gallons to liters prior to the calculation of discharged activity:

$$19{,}044{,}703 \text{ gal} \times \frac{3.785 \text{ L}}{\text{gal}} = 72{,}084{,}201 \text{ L}$$

For radionuclides with reported activity concentrations greater than the MDA, the discharge activity can then be calculated as the product of the activity concentration and total volume discharged:

For gross beta:

$$166 \text{ pCi/L} \times 72{,}084{,}201 \text{ L} = 1.20 \times 10^{10} \text{ pCi}$$

For gross gamma:

$$319 \text{ pCi/L} \times 72{,}084{,}201 \text{ L} = 2.30 \times 10^{10} \text{ pCi}$$

For uranium-234:

$$0.52 \text{ pCi/L} \times 72{,}084{,}201 \text{ L} = 3.75 \times 10^{7} \text{ pCi}$$

(No calculation is performed for those radionuclides with reported activity concentrations less than the MDA: gross alpha, radium-226, radium-228, uranium-235, or uranium-238.)

The individual discharge activities for gross beta, gross gamma, and total uranium are then summed to determine the total discharged activity for the fourth quarter of 2015:

$$(1.20 \times 10^{10} \text{ pCi}) + (2.30 \times 10^{10} \text{ pCi}) + (3.75 \times 10^{7} \text{ pCi}) = \mathbf{3.50 \times 10^{10} \text{ pCi}}$$

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Attachment 3

Calculation of Hauled Activity

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FEEZOR ENGINEERING, INC.
Engineering for a Better World

Calculation of Hauled Activity
Bridgeton Landfill, LLC - Discharge Permit No. 1003803000 - 1

In accordance with Special Condition II.C.3 of the Bridgeton Landfill, LLC Hauled and Industrial Wastewater Discharge Permit (Permit No. 1003803000 - 1), each of the facility's quarterly self-monitoring reports shall specify the activity by radionuclide that is discharged to the Metropolitan St. Louis Sewer District (MSD) system during the reporting period. The methodology that was utilized to calculate the activity discharged from the Bridgeton Landfill during the third quarter of 2015 is described below. A separate calculation is utilized to determine the activity by radionuclide that is hauled to MSD facilities during the reporting period (see **Attachment 2**).

The discharged activity for each radionuclide is determined by multiplying the activity concentration for the reporting period by the total volume that was discharged during the reporting period:

Discharged Activity = Activity Concentration × Discharged Volume

As presented in the laboratory analytical reports accessible on the Barr Engineering Company (Barr) FTP site, Eberline Services (Eberline) reported the following radionuclide activity concentrations from the composite samples collected on November 2 - 3, 2015 from leachate sampling point 014:

Constituent	Result	Units
Gross Alpha	< MDA	pCi/L
Gross Beta	212 ± 62.5	pCi/L
Gross Gamma	391 ± 159	pCi/L
Radium - 226	< MDA	pCi/L
Radium - 228	< MDA	pCi/L
Uranium - 234	0.51 ± 0.38	pCi/L
Uranium - 235	< MDA	pCi/L
Uranium - 238	< MDA	pCi/L

Notes:
1 pCi = 1×10^{-12} Ci
MDA = Minimum Detectable Activity

Note that the gross gamma activity concentration presented above has been qualified by Eberline. As stated in the laboratory analytical report case narrative:

> *Gross Gamma results are misleading because they are reported from Potassium-40 only to demonstrate the method sensitivity. In this case, there are no real positive gamma emitting radionuclides in these samples and most results are reported from the Canberra "non-identified" radionuclides report. The method blank demonstrated acceptable results for all radionuclides as reported.*

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As presented in **Attachment 4**, the following monthly volumes were discharged through leachate sampling point 014 during the fourth quarter of 2015:

Month	Volume Discharged (gal)
October 2015	1,657,500
November 2015	0
December 2015	0

The total volume discharged during the fourth quarter of 2015 is therefore:

$$1{,}657{,}500 \text{ gal} + 0 \text{ gal} + 0 \text{ gal} = 1{,}657{,}500 \text{ gal}$$

Given that activity concentration results are presented in pCi/L, the total volume discharged is converted from gallons to liters prior to the calculation of discharged activity:

$$1{,}657{,}500 \text{ gal} \times \frac{3.785 \text{ L}}{\text{gal}} = 6{,}273{,}638 \text{ L}$$

For radionuclides with reported activity concentrations greater than the MDA, the discharge activity can then be calculated as the product of the activity concentration and total volume discharged:

For gross beta:

$$212 \text{ pCi/L} \times 6{,}273{,}638 \text{ L} = 1.33 \times 10^9 \text{ pCi}$$

For gross gamma:

$$391 \text{ pCi/L} \times 6{,}273{,}638 \text{ L} = 2.45 \times 10^9 \text{ pCi}$$

For uranium-234:

$$0.51 \text{ pCi/L} \times 6{,}273{,}638 \text{ L} = 3.20 \times 10^6 \text{ pCi}$$

(No calculation is performed for those radionuclides with reported activity concentrations less than the MDA: gross alpha, radium-226, radium-228, uranium-235, or uranium-238.)

The individual discharge activities for gross beta, gross gamma, and total uranium are then summed to determine the total discharged activity for the fourth quarter of 2015:

$$(1.33 \times 10^9 \text{ pCi}) + (2.45 \times 10^9 \text{ pCi}) + (3.20 \times 10^6 \text{ pCi}) = \mathbf{3.78 \times 10^9 \text{ pCi}}$$

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Attachment 4

Monthly Leachate Volume Records

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October 2015		
Date	Reported Discharge	Hauled Wastewater
10/01/2015	259,517	0
10/02/2015	183,961	0
10/03/2015	142,965	330,000
10/04/2015	139,365	330,000
10/05/2015	98,609	142,500
10/06/2015	130,087	97,500
10/07/2015	160,822	97,500
10/08/2015	245,052	97,500
10/09/2015	266,709	0
10/10/2015	275,678	0
10/11/2015	284,804	0
10/12/2015	268,696	135,000
10/13/2015	276,370	142,500
10/14/2015	264,557	142,500
10/15/2015	251,848	142,500
10/16/2015	245,257	0
10/17/2015	227,778	0
10/18/2015	200,746	0
10/19/2015	255,000	0
10/20/2015	228,207	0
10/21/2015	95,196	0
10/22/2015	268,343	0
10/23/2015	271,374	0
10/24/2015	129,880	0
10/25/2015	104,739	0
10/26/2015	245,980	0
10/27/2015	210,574	0
10/28/2015	124,513	0
10/29/2015	148,335	0
10/30/2015	222,043	0
10/31/2015	233,685	0
Totals:	**6,460,690**	**1,657,500**

Note: Daily values provided by Civil & Environmental Consultants, Inc.

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November 2015		
Date	Reported Discharge	Hauled Wastewater
11/01/2015	236,820	0
11/02/2015	219,930	0
11/03/2015	241,326	0
11/04/2015	151,826	0
11/05/2015	248,902	0
11/06/2015	223,958	0
11/07/2015	243,295	0
11/08/2015	236,856	0
11/09/2015	236,095	0
11/10/2015	224,604	0
11/11/2015	230,108	0
11/12/2015	191,960	0
11/13/2015	234,043	0
11/14/2015	223,900	0
11/15/2015	215,087	0
11/16/2015	212,222	0
11/17/2015	190,121	0
11/18/2015	127,348	0
11/19/2015	127,095	0
11/20/2015	165,043	0
11/21/2015	216,491	0
11/22/2015	164,139	0
11/23/2015	211,782	0
11/24/2015	220,900	0
11/25/2015	221,395	0
11/26/2015	234,313	0
11/27/2015	242,043	0
11/28/2015	230,826	0
11/29/2015	224,313	0
11/30/2015	220,434	0
Totals:	**6,367,175**	**0**

Note: Daily values provided by Civil & Environmental Consultants, Inc.

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CB 3-15

December 2015		
Date	Reported Discharge	Hauled Wastewater
12/01/2015	222,460	0
12/02/2015	227,756	0
12/03/2015	226,165	0
12/04/2015	226,165	0
12/05/2015	216,808	0
12/06/2015	204,296	0
12/07/2015	230,017	0
12/08/2015	230,017	0
12/09/2015	222,617	0
12/10/2015	215,834	0
12/11/2015	162,417	0
12/12/2015	114,574	0
12/13/2015	205,339	0
12/14/2015	201,495	0
12/15/2015	150,539	0
12/16/2015	233,060	0
12/17/2015	320,248	0
12/18/2015	225,887	0
12/19/2015	229,252	0
12/20/2015	181,704	0
12/21/2015	111,434	0
12/22/2015	106,183	0
12/23/2015	205,382	0
12/24/2015	215,821	0
12/25/2015	200,630	0
12/26/2015	207,587	0
12/27/2015	192,534	0
12/28/2015	164,878	0
12/29/2015	179,543	0
12/30/2015	188,087	0
12/31/2015	198,109	0
Totals:	**6,216,838**	**0**

Note: Daily values provided by Civil & Environmental Consultants, Inc.

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Doug Mendoza Bridgeton Landfill

From: Doug Mendoza
Sent: Wednesday, January 06, 2016 8:48 AM
To: 'LaFata, Natalie'
Cc: Stephen A. Bausano
Subject: RE: Ultimate BOD for Bridgeton Landfill

Natalie,

MSD will not do a side-by-side test. However, the test should use the same seed that MSD uses for the BOD tests. It comes from our treatment plants. Can you have someone come by to pick up a sample? Also, regarding the test results, we will want to see the details of the daily readings, etc.

Steve – When can you have a seed sample for Bridgeton Landfill to pick up?

---Doug

From: LaFata, Natalie [mailto:nlafata@cecinc.com]
Sent: Wednesday, January 06, 2016 8:16 AM
To: Doug Mendoza
Subject: FW: Ultimate BOD

Doug – can you review this and let me know what all I need and who to correlate the sample drop off with. Thanks Doug! Call if you have any questions! (hopefully can answer them)

Natalie L. La Fata / Plant Manager
Civil & Environmental Consultants, Inc.
4848 Park 370 Blvd., Suite F · Hazelwood, MO 63042
Toll Free: (866) 250-3679 ext. 3626 · Fax: (314) 656-4595
Mobile: (314) 341-3375 · http://www.cecinc.com
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From: Cooper, Ivan
Sent: Tuesday, December 01, 2015 3:01 PM
To: LaFata, Natalie
Cc: Kamp, Kevin
Subject: RE: Ultimate BOD

Natalie,
We discussed an inoculum procedure with MSD to get a suitably acclimatized base bug population for the BOD test. This would be used in the BOD portion of the billing. The tests that we ran last year showed that the BOD kept rising and did not level off as typical with a 30 day BOD test. Nevertheless, the ultimate should not be an issue with them because of their wastewater retention time in their treatment systems.

We did not discuss in detail the ultimate BOD versus CBOD, as the carbonaceous BOD should be the only thing that impacts MSD. Here is why: They process their wastewater in the matter of hours and do not obtain a nitrification

Doug Mendoza

Bridgeton Landfill

From: LaFata, Natalie <nlafata@cecinc.com>
Sent: Wednesday, January 06, 2016 8:16 AM
To: Doug Mendoza
Subject: FW: Ultimate BOD
Attachments: Bridgeton BOD Innoculum Procedure.docx; bod-kinetics.pdf

Doug – can you review this and let me know what all I need and who to correlate the sample drop off with. Thanks Doug! Call if you have any questions! (hopefully can answer them)

Natalie L. La Fata / Plant Manager
Civil & Environmental Consultants, Inc.
4848 Park 370 Blvd., Suite F · Hazelwood, MO 63042
Toll Free: (866) 250-3679 ext. 3626 · Fax: (314) 656-4595
Mobile: (314) 341-3375 · http://www.cecinc.com
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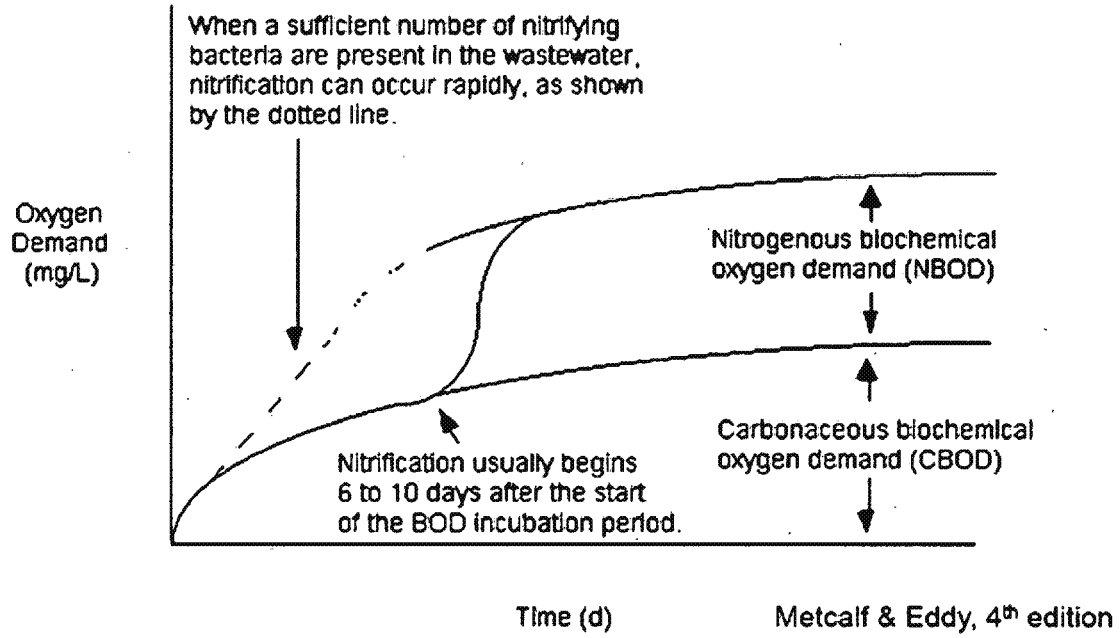
From: Cooper, Ivan
Sent: Tuesday, December 01, 2015 3:01 PM
To: LaFata, Natalie
Cc: Kamp, Kevin
Subject: RE: Ultimate BOD

Natalie,
We discussed an inoculum procedure with MSD to get a suitably acclimatized base bug population for the BOD test. This would be used in the BOD portion of the billing. The tests that we ran last year showed that the BOD kept rising and did not level off as typical with a 30 day BOD test. Nevertheless, the ultimate should not be an issue with them because of their wastewater retention time in their treatment systems.

We did not discuss in detail the ultimate BOD versus CBOD, as the carbonaceous BOD should be the only thing that impacts MSD. Here is why: They process their wastewater in the matter of hours and do not obtain a nitrification oxygen load. Since the BOD relates to the amount of oxygen needed by the wastewater, their process would not experience a load of nitrification oxygen, nor would they experience an ultimate BOD load (BODu) that typically is the BOD after 30 days. The CBOD is the BOD in 5 days with a nitrification inhibitor that prevents the bugs from exerting an nitrification demand, only a carbonaceous demand. See attached for Procedure I sent them and a further description of BOD and BOD u.

Nitrogenous and Carbonaceous BOD



Metcalf & Eddy, 4th edition

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From: LaFata, Natalie
Sent: Tuesday, December 01, 2015 3:28 PM
To: Cooper, Ivan
Subject: RE: Ultimate BOD

Ivan – can you give me the parameters for the UBOD?? Is it for a 30 day timeframe? And checked once/day?

Natalie L. La Fata / Plant Manager
Civil & Environmental Consultants, Inc.
4848 Park 370 Blvd., Suite F · Hazelwood, MO 63042
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From: Cooper, Ivan
Sent: Thursday, November 05, 2015 11:16 AM
To: Kamp, Kevin
Cc: LaFata, Natalie
Subject: Re: Ultimate BOD

Ok

Sent from my iPhone

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On Nov 5, 2015, at 11:09 AM, Kamp, Kevin <kkamp@cecinc.com> wrote:

Ivan,
Natalie will be calling you to revisit the protocol you discussed with MSD in proving out the surcharge issues. She is planning those samples next week.

Sincerely,

Kevin T. Kamp, P.E. / Principal
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MEMORANDUM

DATE: December 2, 2013
TO: Bridgeton Landfill Team
FROM: Ivan Cooper
PROJECT #: 130-484
RE: Bridgeton BOD Inoculant Request from MSD

In response to MSD's request at the November 14, 2013 Bridgeton Landfill (BLF) Leachate Coordination meeting at MSD's Bissell Point Plant, CEC investigated the following:

1. The request was to "Develop a protocol for Pace labs to use an acclimated BOD inoculant for the BOD test for the completed Bridgeton plant. This test will be used as a surrogate to the COD test."
2. Ed Galbraith of Barr Engineering reported that Pace Analytical is performing the BLF leachate BOD tests.
3. Ivan Cooper contacted Pace Analytical's Technical Supervisor, Barry Johnson, who reported that preparing a specialized inoculant was possible. He reported that Tim Grambling in Pace's Lenexa Laboratory (913-599-5665) would coordinate the effort, For using the BLF acclimated leachate mixed liquor at the inoculant, a 5 liter sample will be shipped to their laboratory. Pace will prepare that inoculant according to their standard procedures, and freeze dry the prepared sample. They will thaw portions of the inoculant to inoculate each BOD until that portion is used, and then request an additional 5 liter sample to start the process again.
4. Each Chain of Custody form that will accompany samples sent to Pace will specifically request the BLF inoculant to be used for this analysis.
5. On balance, CE questions the use of this inoculant, as the BLF pretreated effluent will not be treated in mixed liquor in the BLF treatment plant, but will be treated in the MSD facility. Therefore, would it not be more appropriate to use an inoculant similar to the process in the MSD plant where this effluent flow will be further treated?
6. Pace Analytical is comfortable with whichever inoculant MSD request to be used, and will prepare whichever 5 liter sample is sent to them.
7. If the inoculant is to be prepared from the BLF pretreatment plant mixed liquor, then the 5 liter sample will be obtained after the mixed liquor is stabilized following startup, approximately one month following startup of the activated sludge process. If the inoculant is to be prepared from whichever MSD plant will treat the waste, the sample

will be obtained after an agreed upon time of mixed liquor acclimatization with the BLF effluent, with a suggested time period of a similar one month acclimatization period.